

DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT
November 2001

**SECTION 404, CLEAN WATER ACT, PERMITTING
CONTINUED MINING OPERATIONS OF PCS PHOSPHATE
AT HAMILTON COUNTY MINE**

HAMILTON COUNTY, FLORIDA

**WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.
(d/b/a PCS PHOSPHATE—WHITE SPRINGS)**

LEAD AGENCY: Jacksonville District, U.S. Army Corps of Engineers (ACOE)

This Draft Supplemental Environmental Impact Statement (DSEIS) describes Section 404 of the Clean Water Act permitting actions that include mining an additional 1,858 acres of jurisdictional wetland jurisdiction within a 19,077 acre application footprint. This facility has been in operation at this location continuously since 1965. An initial Environmental Impact Statement (EIS) was prepared for the entire mining operations in the mid 1980s. This will be a modification of existing ACOE permit # 198404652. The proposed project would allow integration of remaining permitted mining with new mining areas to allow smooth and economical mining operations to continue with minimal adverse impacts on the environment. Temporary impacts will be mitigated for through onsite wetland creation of 2,061 acres and other mitigation developed through an interagency and public planning and permitting tool known as an "Ecosystem Management Agreement." Minimization and avoidance was accomplished during the initial EIS efforts that resulted in over 19,000 acres of area being preserved from mining. The proposed project will provide over 300,000,000 person-hours of employment and over \$15,000,000,000 of economic benefits.

For additional information contact:

U. S. Army Corps of Engineers: Kelly Finch, Gainesville Regulatory Office, telephone (352)332-6993 – email-- *Kelly.C.Finch@saj02.usace.army.mil*
US mail; U. S. Army Corps of Engineers, Gainesville Regulatory Office, 101 NW 75th St. Suite 3, Gainesville, Fl. 32607-1609.

Additional comments must be received by the date indicated in the ACOE pubic notice for this project.

**SUMMARY
OF
DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT
ON
WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.
(d/b/a PCS PHOSPHATE—WHITE SPRINGS)**

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Need or Opportunity. The White Springs Agricultural Chemicals, Inc. (d/b/a PCS Phosphate – White Springs) (PCS) proposes to discharge dredged/fill material into 1,858 acres of jurisdictional wetlands to facilitate a continuation of mining operations within a 100,580 acre project area located in southeast Hamilton County, Florida (Figure 1). The area is approximately 40 miles south of Valdosta, Georgia and 60 miles west of Jacksonville, Florida. It is located within the Upper Suwannee River Basin that encompasses a total of 9,950 square miles in Florida and Georgia (926 square miles are within Florida). Most of the river flow passing the Hamilton County Mine (HCM) originates in the Okefenokee Swamp, which results in the waters being very darkly colored and acidic. Landuse in the basin is primarily silviculture and agriculture. Population in the upper basin is low.

On February 11, 1980, the Environmental Protection Agency (EPA), Region IV requested that the Jacksonville District, U. S. Army Corps of Engineers (ACOE or District), assert discretionary authority over all wetlands within the Occidental Chemical Agricultural Products, Inc. (Occidental) [predecessor to PCS Phosphate-White Springs] project area, based on concerns for habitat loss and potential water quality impacts on the Suwannee River. The location of the project area is shown in Figure 1. The District asserted discretionary authority on June 17, 1980. On January 8, 1981, the District Engineer determined that an Environmental Impact Statement (EIS) would be required.

Under Section 404 of the Clean Water Act, the ACOE issued an EIS in February 1986 for Occidental in Hamilton County. The 1985 DEIS considered various alternatives for mining and reclamation/mitigation for the purpose of producing phosphate ore. The final EIS was issued in 1986 and evaluated an additional alternative. The EIS was supported by a Technical Background Document (TBD) that was completed in 1985. Various regulatory decisions were made by the

ACOE (and other regulatory authorities) in the years following finalization of the EIS.

Based on the EIS and a 1987 Memorandum of Understanding (MOU) among Occidental, EPA, and the Florida Department of Environmental Regulation (now Department of Environmental Protection (FDEP)), the ACOE issued a long-term permit for mining and mining operations in approximately 7,500 acres of wetlands on October 7, 1987. That permit is scheduled to expire on October 7, 2002. Figure 2 shows the areas preserved from mining by the terms of the MOU (over 19,000 acres), cumulative areas permitted in prior actions or disturbed prior to assertion of jurisdiction by the ACOE (approximately 46,000 acres), and the evaluation area for this project (approximately 36,000 acres). The 1987 ACOE permit incorporated the terms of the 1987 MOU by reference. Figure 3 shows the breakdown of areas categorized by the 1987 MOU.

In 1995, Potash Corporation of Saskatchewan acquired the White Springs operations from Occidental. The Hamilton County facility has continued operations as PCS Phosphate-White Springs (PCS) Hamilton County Mine (HCM). In 1997, PCS approached the ACOE about permit needs to continue operations beyond the October 7, 2002 expiration date of the current permit. The ACOE directed PCS to update the 1985 TBD and the 1986 EIS and produce a Supplemental TBD (STBD) and Supplemental EIS (SEIS). Based on the alternative selected in the SEIS, PCS would then apply for a "life of mine" permit to complete operations within the EIS project boundary. The STBD was published on January 24, 2000 and an Addendum to the STBD was published on November 27, 2000.

This Draft Supplemental Environmental Impact Statement (DSEIS) describes permitting actions and operations to include an additional 1,858 acres of wetland jurisdiction and reclaim 2,061 acres of wetlands as partial mitigation for the impacts within a 19,077 acre footprint as a modification of the existing permit. Further modifications of mitigation standards for areas within the existing permit are also described. Permitting of the areas included in the PCS application will provide over 300,000,000 person-hours of employment.

As per the guidance on supplemental EISs, this DSEIS and the STBD do not repeat information contained in the original EIS that is still valid. The original 1985 TBD and 1985 DEIS are available online at <http://www.saj.usace.army.mil/permit/occidental.htm>. [sic].

Efforts to develop the Plan of Study (POS) for the STBD and for this SEIS began in late 1997. The ACOE directed PCS to prepare a SEIS to update the 1986 EIS. PCS worked with the various local, state and federal agencies, environmental groups and interested parties to develop a draft POS for the STBD, which was to contain the technical information and analyses to support the SEIS. The formal Public Notice requesting comments on the draft POS was published by the ACOE

on June 19, 1998. The ACOE published an intent to draft a Draft Supplemental Environmental Impact Statement (SEIS) in the Federal Register at FR/Vol. 63, No. 126/Wednesday, July 1, 1998/Notices (Appendix C). Several meetings with federal, state, and county organizations, environmental groups and the public were held to discuss the POS and obtain public input. On September 25, 1998, PCS published the final POS for the STBD.

The Ecosystem Management Advisory group (EMAg) members and interested public met twenty nine times from January 1998 through September 2001 to discuss issues related to the environmental evaluations and studies for the DSEIS and various permits needed by PCS. Records of these meetings can be found at the following address:

<http://www.dep.state.fl.us/northeast/admweb/pcsprogram/pcsmin.htm>
and as appendix B to the Ecosystem Management Agreement (EMA).

Major Findings and Conclusions. These proposed actions are in the national interest and can be constructed while protecting the human environment from unacceptable impacts. The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, landuse, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

Wetland reclamation has become an accepted practice to mitigate for wetland mining impacts. Research and experience continue to improve wetland design and establishment practices. PCS has successfully reclaimed approximately 2,600 acres of wetlands at the HCM. Approximately 309 acres have been released by the FDEP Bureau of Mine Reclamation (BOMR) and approximately 2,300 acres have met all of the initial requirements and are in the five year extended establishment period. Given PCS's successful wetland reclamation, the ability to provide high paying jobs, tax payments, other economic benefits, and the lack of any significant adverse environmental impacts, it seems prudent and socially and environmentally correct to issue a mining permit to allow PCS to continue its mining operations. The avoidance and minimization analysis for the EIS project area was accomplished through the 1987 MOU, which formed the basis for the first ACOE mining permit. Please refer to section 2.7 of the DSEIS for details of the MOU. Table 1 compares

the alternatives examined in the STBD and selected alternative represented by the permit application.

Environmental benefits that would occur if each of the respective regulatory authorities of the applications approve the applications in substantially the same form as presented in the Ecosystem Management Agreement (EMA) are summarized as follows:

- PCS will perform reclamation of wetlands mined after January 1, 2002 at a minimum of acre-for-acre, type-for-type (forested vs. herbaceous) ("conventional standards") within the project boundary, except for those wetlands mined after January 1, 2002 within clay settling area 10V and within the reclamation program area designated as PCS-HC-CB(9), which shall remain subject to the previously approved alternate standards. This commitment includes areas that are currently permitted as alternate standards areas. Modification of the applicable reclamation/mitigation standards is incorporated in the applications.
- PCS will provide conservation easements within the Upper Suwannee River Region (or other form of permanent preservation including fee ownership) on one-third of a wetland acre per wetland acre mined (regardless of whether the mined wetlands are within the regulatory jurisdiction of any of the parties to this Agreement) in the areas covered by the Agreement. Wetland boundaries are fixed on the basis of the delineations represented by the June 30, 2000 ACOE delineation for the evaluation area and by delineations incorporated in previous ACOE permits. Selection of appropriate areas will be guided by the Upper Suwannee Region Land Acquisition and Management Advisory Team Strategic Plan approved by the Secretary of FDEP in April 1999. The conservation easement areas could include, but would not be required for, constructed on-site mitigation areas.
- A two-tier monitoring and release criteria system will be developed and applied. The Tier 1 system will be applicable to the mitigation projects described in the Joint ACOE/FDEP Wetland Resource Application. These mitigation projects relate to ACOE and "DER" (Department of Environmental Regulation) wetland impacts. Monitoring and release criteria are described in the applications. The design of these projects implements the environmental enhancement concept of concentration of wetlands at the downstream limits of mining and reclamation activity in specific drainage basins. The Tier 2 system will be applicable to all other wetland reclamation areas. This tier will follow the standard (non-ERP (Environmental Resource Permit)) FDEP BOMR criteria used for isolated wetlands in the project area as found in Chapter 62C-16, FAC (1993).

- PCS will incorporate the objective of water flow across wetlands prior to discharge into the specific design and implementation of future reclamation projects. Detailed flow patterns will be created to direct upland surface runoff through wetlands to the greatest extent practicable. For land-and-lakes reclamation projects designed to discharge directly to streams, a minimum acreage of 10% of the open water surface area in that lake will be constructed as wetland at the point of discharge.
- PCS will incorporate upland mixed forest buffers adjacent to Tier 1 wetlands into the specific design and implementation of future reclamation projects.
- Assuming wetland boundaries for the project area to be as described in the June 30, 2000 ACOE delineation, PCS will not contest or seek further review of ACOE jurisdiction within the project boundary, including the extent of jurisdiction on areas previously permitted.

PCS will provide the minimum cumulative contribution to the existing land acquisition fund required by Special Condition 6 of the January 6, 1997 modification to ACOE permit 198404652 by the contribution scheduled for the year 2007, with the amount of the minimum contribution adjusted proportionally to correspond to the wetland acres mitigated through the “post-modification” standards. With modifications and various mapping corrections, the corrected total acreage of wetlands covered by the permit as of November 2, 2001 is 7,439. These are divided between 1,468 acres subject to “pre-modification” (conventional) standards and 5,971 acres subject to “post-modification” (alternative) standards. The conversion of mitigation standards in the application from “post-modification” to “pre-modification” for 2,700 acres leaves 3,271 acres to be mitigated through the contributions. The wetland acreage in the existing permit footprint would then be 3,271 acres subject to “post-modification” standards and 4,168 subject to “pre-modification” (conventional) standards in chapter 16C-16 FAC, as they existed in 1993 (currently in 62C-16 FAC). Proportional reduction changes the minimum cumulative contribution from \$15,560,000 to \$8,523,993.

In addition to the environmental impacts, there are significant economic and human resource impacts. The cumulative total impact on the State of Florida is over \$15.1 billion. Of this total, over \$4.4 billion represents personal incomes to Florida residents, over \$1.3 billion is taxes for the state and local governments in Florida, and over \$9.4 billion is sales for businesses located in Florida, after payrolls and taxes. Looked at another way, these 28 years of operation can be expected to generate over 160,000 person-years of employment in the state.

The total economic impact of a projected 28 years of PCS’s operations amounts to over \$5.3 billion in the three-county area including Hamilton, Columbia, and Suwannee Counties. Of this total, over \$2.2 billion represents incomes to the

residents of the counties, just under \$390 million is taxes for the state and local governments in the area, and over \$2.7 billion represents sales for the businesses located in the three counties. In terms of employment, these 28 years of operation will generate more than 77,000 person-years of employment in the three counties.

The cumulative total economic impact of continued operation of PCS in Hamilton County for an additional 28 years will be more than \$2.0 billion. Of this total, just under \$837 million will be incomes to individual Hamilton County residents, over \$235 million will be taxes for Hamilton County, and over \$934 million will be sales for Hamilton County businesses, after payrolls and taxes. In terms of employment, these 28 years of operation will generate more than 26,000 person-years of employment in Hamilton County.

Adverse impacts would include the temporary elimination of upland and aquatic communities due to the clearing and mining activities. Some individual upland and aquatic fauna that are less mobile would be eliminated in the clearing and mining process. More mobile individuals would simply migrate into unimpacted areas or recently mined or reclaimed areas. None of these would be of significant magnitude to endanger any faunal populations in the areas. No listed threaten or endangered species would be adversely impacted by any of the alternatives. The reclamation and mitigation of uplands and wetlands would restore the communities eliminated by the mining activities. There will be a minor net loss in upland area after reclamation due the conversion of upland areas to lakes and wetlands.

Should the proposed activities not be approved there would be a significant adverse impact on the people and the economy of the local area.

The avoidance and minimization analysis required by federal regulation and the "public interest" review for both state and federal interests were completely addressed during the previous EIS and permitting efforts. Occidental, the EPA, and the DER, (now FDEP) entered into a Memorandum of Understanding (MOU) in 1987 in order to formalize and document this process. This MOU provided the basis for EPA and DER to concur in the issuance of the requested ACOE Section 404 permit. The MOU represented a review of the entire project area, including the alternatives analysis in the EIS. It incorporated the results of a detailed examination of wetlands within the project boundary by a variety of federal and state agencies and other interested parties. The 1987 MOU directly addressed both the 1987 permitting and all future permitting within the project area. Among its most important terms was the categorization of wetlands within the project boundary. Based upon review of data compiled for the EIS and extensive fieldwork, wetlands were divided into the following categories:

Preservation: The highest quality, most sensitive wetlands, and the 100-year floodplain of the Suwannee River were designated for permanent preservation from

the company's mining operations. More than 19,000 acres were identified for preservation. Preservation of these areas was to be accomplished by the transfer of the company's mining rights to public ownership or, where the company did not own such rights, a binding agreement not to acquire the right to mine or disturb the areas. The State of Florida designated the Suwannee River Water Management District (SRWMD) as the appropriate entity to receive those transfers and commitments. The transfer of existing mining rights was begun in 1990 with the company's interest in the 100-year floodplain of the Suwannee River. The actual areas transferred and made subject to the binding commitment are shown on Figure 7. The process was completed in 1997. Based upon the terms of the 1987 MOU, the company does not anticipate designation of additional preservation areas.

Conditional: Permitting of these areas, which included most of Swift Creek Swamp and a portion of Lower Bee Haven Bay, was made conditional upon the company's successful demonstration of forested wetland reclamation through a detailed monitoring program over a six-year period on four selected wetland reclamation sites. That demonstration was completed on schedule in 1993, whereupon the ACOE, with agreement from EPA and FDEP (EPA, June 28, 1994; ACOE August 25, 1994 approval letters in Appendix C), acknowledged the demonstration of success and the conditional areas were approved for operations under the terms of its 1987 permit (see below).

Deferral: All parties agreed to defer the permitting decision on these areas until the anticipated second major ACOE permit. Portions of these are included in this application.

Permittable: Terms were specified in the MOU for permitting of all remaining wetlands within the project boundary under standard regulatory programs. Except for the deferral areas noted above, all wetlands proposed for evaluation in the current process, as well as those permitted in the prior process, are covered by these terms.

Alternatives. All of the alternatives were evaluated in comparison to the "affected environment" as defined in 40 CFR 1502.15. It is the condition that would exist in the area in the absence of the proposed project. This includes the reclamation that would be completed for areas that have been or will be mined under the no action alternative, Alternative A. Each alternative and the activities included in the application include proposed mitigation to offset the impacts of the mining activities. As the mitigation compensates for the impacts of each alternative, comparisons among the alternatives is difficult. Mining is a temporary impact due to the reclamation and mitigation that goes hand in hand with the mining. It should be noted that the mining and reclamation activities occur over extended time periods. The timing between mining and reclamation is roughly the same regardless of the alternative. Only the mine life and acres impacted differ. Both

federal and state laws require mitigation and reclamation of the land that is mined. Given the above, the main differences among the alternatives are the socioeconomic impacts.

All of these wetlands were carefully evaluated and their mitigation carefully designed to prevent any failures or offsite impacts. The details are provided in the joint ACOE and FDEP application. Overall impacts among the alternatives is best differentiated based on total acres impacted as all the wetlands are reclaimed on an acre for acre and type for type basis. Projected years of operation for each alternative are incremental to existing permitted areas, and may vary substantially with changes in mining rates.

Alternative A; no wetland mining, no permitting actions (projected statistical mine plan basis), assumes that all upland areas 40 acres or greater in areal extent that contain reserves or may contain mineable quantities of phosphate are mined. No wetlands are mined in the Alternative A evaluation area except for the interim permit area as discussed in Section 1 (STBD, 2000). No preservation areas are scheduled for mining, but some small areas may be affected on a limited basis for mine support corridors. A total of 2,841 acres of mining are projected for Alternative A. This figure represents the projected mining in the evaluation area and is equivalent to approximately 3 years of mine life. The excavation quantities were calculated to be 155,941,021 total cubic yards for the evaluation area at an average yearly rate of 46,685,258 yards per year.

Clays generated by Alternative A can be contained in the clay settling areas (CSA) identified in the Conceptual Reclamation Plan (CRP, 1995). No additional settling areas over those planned for construction inside the previously permitted and disturbed area would be needed.

Alternative B, mining of all reserves including wetlands (projected statistical mine plan basis), assumes that all areas within the evaluation area that contain at least 40 contiguous acres of mineable ore are mined whether under wetland or upland. No preservation areas are scheduled for mining, but some small areas may be affected on a limited basis for mine support corridors. This alternative projects an approximate total of 16,298 acres mined over about 20 years. The excavation quantities would be 969,889,813 total cubic yards for the evaluation area at an average yearly rate of 49,503,803 total cubic yards.

Six additional settling areas (2,870 acres) over and above those identified in the CRP (1995) would be needed to contain the clays generated in this alternative. The additional settling areas would be located adjacent to and are incorporated into the existing CSA system to the greatest extent possible.

Alternative C, mining of all known reserves including wetlands excluding “DER” jurisdictional and deferral wetlands (projected statistical mine plan basis), assumes that all areas, except for the Deferral Areas and FDEP jurisdictional areas, within the evaluation area that contain at least 40 contiguous acres of mineable ore are mined whether under wetland or upland. No preservation areas are scheduled for mining, but some small areas may be affected on a limited basis for mine support corridors. This alternative projects an approximate total of 14,005 acres mined over about 16 years. The excavation quantities were calculated to be 795,029,901 total cubic yards for the evaluation area at an average yearly rate of 49,503,803 total cubic yards.

Sand and clay placement in this alternative is the same as Alternative B except that less clay, tailings, and mudballs are generated due to the reduction in mining acres between the two alternatives.

Alternative D, mining of all known reserves (as of November 2000) including wetlands (prospect and landowner agreement mine plan basis), assumes that all areas within the evaluation area that contain at least 40 contiguous acres of mineable ore are mined whether under wetland or upland. No preservation areas are scheduled for mining, but some preservation areas may be affected on a limited basis by mine support corridors as contemplated in the MOU and discussed in Section 2.1 (Addendum to STBD, 2000). This alternative projects an approximate total of 20,514 acres mined over about 22 years. The excavation quantities were calculated to be 1,202,209,192 total cubic yards for the evaluation area at an average yearly rate of 54,854,137 total cubic yards.

Five additional settling areas (2,893 acres) over and above those identified in the CRP (1995) would be needed to contain the clays generated in this alternative. The additional settling areas would be located adjacent to and would be incorporated into the existing CSA system to the greatest extent possible.

The ACOE application footprint/preferred alternative contains approximately 19,077 acres. Mining or mine support activities will be conducted within these areas. Ditches and/or berms will isolate activities within this footprint from adjacent uplands and wetlands. All water within these areas will be captured and become part of the mine water system. It will only be released from the site through permitted discharge points and after it meets the permit limits to insure no adverse impacts to water of the U.S. or State.

There are 1,858 acres of ACOE jurisdictional wetlands within the footprint. The footprint also includes an additional 4,452 acre of other wetlands. All of the 6,310 acres of wetlands are regulated by the BOMR and Hamilton County. The 1,858 acres of ACOE jurisdiction will be mitigated for by reclaiming 2,061 acres of wetlands. These mitigation acres will be considered “Tier 1” which means that

they have detailed design, monitoring and release criteria, many of which go beyond requirements in the applicable regulations (see Joint Application for Works in the Waters of Florida for Wetland Resource Alterations (Dredging and Filling (D/F Application)) for details). Other commitments of PCS described above and in the application provide additional mitigation.

This alternative, mining of all known reserves (as of July 2001) including wetlands (prospect and landowner agreement mine plan basis), assumes that all areas within the application footprint that contain at least 40 contiguous acres of mineable ore are mined whether under wetland or upland. No preservation areas are scheduled for mining, but some preservation areas may be affected on a limited basis by mine support corridors as contemplated in the MOU and discussed in Section 2.1 (Addendum to STBD, 2000). This alternative projects an approximate total of 19,077 acres mined over about 28 years. The excavation quantities were calculated to be 1,200,324,840 total cubic yards for the evaluation area at an average yearly rate of 42,868,744 total cubic yards.

Five additional settling areas (3,285 acres) over and above those identified in the CRP would be needed to contain the clays generated in this alternative. The additional settling areas would be located adjacent to and would be incorporated into the existing CSA system to the greatest extent possible.

Preferred Alternative(s). The preferred alternative is the application footprint/preferred alternative, which is discussed in the above section.

There are 1,858 acres of ACOE jurisdictional wetlands within the footprint. The footprint also includes an additional 4,452 acres of other wetlands. All of the 6,310 acres of wetlands are regulated by the BOMR and Hamilton County. The 1,858 acres of ACOE jurisdiction will be mitigated for by reclaiming 2,061 acres of wetlands. These mitigation acres will be considered "Tier 1" which means that they have detailed design, monitoring and release criteria, many of which go beyond requirements in the applicable regulations (see Joint Dredge and Fill Application for details).

Issues Raised by the Public and Agencies. The following issues were identified during scoping and by the preparers of this DSEIS to be relevant to the proposed action and appropriate for detailed evaluation:

- Wetland boundaries
- Wetland jurisdiction (revised to conform to the January 9, 2001 US Supreme Court decision, Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, No. 99-1178 (SWANCC))
- Best type of mitigation (conventional, pre-modification or alternative/offsite, post-modification)

- Location of clay settling areas
- Potential Net Ecosystem Benefits
- Wetland evaluation criteria
- Long-term landuse
- Threatened and endangered species
- Socioeconomic impact on county and employees

Areas of Controversy. There are no unresolved issues at this time. The DSEIS was conducted as part of a State of Florida Ecosystem Management Agreement process that includes extensive interagency and public involvement. All issues were resolved during this process.

Unresolved Issues. There are no unresolved issues at this time. The DSEIS was conducted as part of State of Florida Ecosystem Management Agreement process that includes extensive interagency and public involvement. All issues were resolved during this process.

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ABBREVIATIONS

ACOE	U. S. Army Corps of Engineers
AICR	Advisory Council on Intergovernmental Relations
AMAT	Upper Suwannee Region Land Acquisition and Management Advisory Team
AMST	Upper Suwannee Region Land Acquisition and Management Team
BMP	Best Management Practices
BOMR	Bureau of mine Reclamation
BRN	Basin Runoff Networking
C	Centigrade
CARL	Conservation and Recreation Lands
CASLA	Combined Alternate Standards/Land Acquisition Reclamation/Mitigation Alternative
CDA	Coordinated Development Areas
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CR	County Road
CRP	Conceptual Reclamation Plan
CSA	Clay Settling Area
CSOS	Conventional Standards/On-Site Reclamation/Mitigation Alternative
DEIS	Draft Environmental Impact Statement
DER	Department of Environmental Regulation
DOQQ	Digital Orthophoto Quarter Quadrangles
DRI	Development of Regional Impact
EIS	Environmental Impact Statement
ELMS	Environmental Land Management Committee
EMA	Ecosystem Management Agreement
EMAg	Ecosystem Management Advisory Group
EMAT	Ecosystem Management Advisory Team
EPA	Environmental Protection Agency
ERC	Effective Radium Concentration
ERP	Environmental Resource Permit
ESP	Environmental Services and Permitting
ET	Evapotranspiration
F	Fahrenheit
FAC	Florida Administrative Code
FDE	Florida Defender of the Environment
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FDH	Florida Department of Health
FDNR	Florida Department of Natural Resources
FDOT	Florida Department of Transportation
FEIS	Final Environmental Impact Statement
FWCC	Florida Fish and Wildlife Conservation Commission
FIPR	Florida Institute for Phosphate Research
FLUCCS	Florida Landuse, Cover and Forms Classification System (FDOT, 1985)
FNAI	Florida Natural Areas Inventory
FS	Florida Statutes
FT	Feet
FWCC	Florida Fish and Wildlife Conservation Commission
GIS	Geographic Information System
GOAL	Greater Okefenokee Association of Landowners

GPS	Global Positioning System
HCM	Hamilton County Mine
HRS	Florida Department of Health and Rehabilitative Services
HSPF	Hydrologic Simulation Program – Fortran
HY8	Hydraulic Design of Highway Design Culverts
IHN	Integrated Habitat Network
LAMAC	Land Acquisition and Management Advisory Council
LDR	Land Development Regulations
MGD	Million Gallons per Day
MOA	Memorandum of Agreement, refers to 1995 OCC/FDEP MOA
MOU	Memorandum of Agreement, refers to 1987 OCC/EPA/DER MOU
MP	measuring point
MWRAP	Modified Wetlands Rapid Assessment Procedure
NCDC	National Climatic Data Center
NCFRPC	North Central Florida Regional Planning Council
NEB	Net Ecosystem Benefit
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NORM	Naturally occurring radioactive materials
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resource Conservation Service, formerly Soil Conservation Service
OCC	Occidental Chemical Company
OFW	Outstanding Florida Water
OWRAP	Open Water Rapid Assessment Procedure
P2000	Preservation 2000
PCS	White Springs Agricultural Chemicals, Inc.(d/b/a PCS Phosphate - White Springs
PDWS	Primary Drinking Water Standards
PL	Public Law
POS	Plan of Study
SA	Settling Area
SCM	Swift Creek Mine
SCS	Soil Conservation Service
SEIS	Supplemental Environmental Impact Statement
SFWMD	South Florida Water Management District
SHW	Seasonal High Water
SOR	Save Our Rivers
SR	State Road
SRM	Suwannee River Mine
SRPP	Strategic Regional Policy Plan
SRWMD	Suwannee River Water Management District
STBD	Supplemental Technical Background Document
SWFWMD	Southwest Florida Water Management District
SWIM	Surface Water Improvement and Management
TBD	Technical Background Document
TLD	Thermoluminescent dosimeters
TNC	The Nature Conservancy
UF	University of Florida
UFA	Upper Floridian Aquifer
UPWRAP	Upland Rapid Assessment Procedure
USDA	U. S. Department of Agriculture
USDOT	U. S. Department of Transportation

USFS	U. S. Forest Service
USFWS	U. S. Fish and Wildlife Service
USGS	U. S. Geologic Survey
WEP	Wetlands Evaluation Procedure (Reppert et al., 1979)
WRAP	Wetlands Rapid Assessment Procedure

DEFINITIONS

Adsorption- the attraction and adhesion of a layer of ions from an aqueous solution to the solid mineral surfaces with which it is in contact.

Affected Environment- the area within the Project Boundary in the condition that would exist in the absence of activities being evaluated in this study but including actual and predicted characteristics of areas previously permitted or disturbed after completion of all permitted activities (as described in and required by Code of Federal Regulations Title 40, Chapter V, Part 1502, Section 15).

Aquifer- a body of sediment or rock that is sufficiently permeable to conduct ground water and to yield economically significant quantities of water to wells and springs.

Biodegradation- the process of consumption of organic chemicals in the environment by microorganisms.

Brim-full Conditions- conditions at which maximum reach volumes have been attained and additional input results in immediate discharge.

Clay Settling Area (CSA)- an area within an engineered embankment utilized for the storage of phosphatic clay (may also be referred to as Clay Management Area).

Cone of Depression- a depression in the water table surface, roughly conical in shape, which results from the withdrawal of water from an aquifer.

Discharge Rate- a measure of flow, expressed in terms of volume per unit of time (i.e. cubic feet per second, millions of gallons per day).

Discharge Volume- a measure of quantity calculated by multiplying the discharge rate by a unit of time.

Evaluation Area- the area within the Project Boundary not including areas previously permitted or disturbed.

Evapotranspiration (ET)- the combined effect of direct evaporation and transpiration from vegetation, resulting in the conversion of liquid (water) into vapor.

Intermediate Aquifer/Confining Unit- the stratigraphic unit that lies between and collectively retards the exchange of water between the overlying Surficial Aquifer and the underlying Floridan Aquifer.

Mass Volume- the total quantity of runoff (in acre-feet) that discharges from the site as a result of a design storm event.

Method Detection Limit- the minimum concentration of a chemical that can be measured within a 99 percent confidence interval for an analyte concentration greater than zero.

Mine Support- includes activities associated with and often done in preparation for mining or unit operations or to provide access to and from mine blocks. These include activity such as construction of corridors, prospecting, dam construction, and other activities.

Mine Support Corridor- a variable length of land surface usually 200 to 1320 feet in width that is used to connect mining blocks together with infrastructure needed to conduct mining operations. The infrastructure may consist of vehicle roadways, pipelines, power lines, and dragline walking paths. Mine Support Corridors represent areas of land that are subject to disturbance or “dredging and filling”, but not subject to actual recovery of ore or mining. Hence the general soil profile is relatively undisturbed as compared to areas subject to mining.

Mining- recovery of ore (matrix) by a process of 1) removing overburden (stripping) and then 2) extracting ore. Usually both the ore extraction and overburden removal is accomplished by large electric draglines in Florida phosphate operations.

Mining Block- a contiguous area of land at least 40 acres in size that contains reserves.

Mining Operations- includes all steps in unit operations, placement of ore by-products such as sand tailings and clays, de-watering of clays to affect a surface suitable for reclamation, and clarification and handling of runoff waters.

Mining Probability Factor- the historical experience of the occurrence of reserve quality ore in any given potential mine area location expressed as a percentage.

Peak Flow Rate- the maximum instantaneous flow rate (in cubic feet per second) discharged from a particular drainage basin in response to a design rainfall event.

Potentiometric Surface- the elevation to which water would rise in a tightly cased well due to hydrostatic pressure.

Primary Drinking Water Standards (PDWS)- the maximum contaminant levels (MCLs) defined in Section 62.550.310 of the Florida Administrative Code (FAC).

Project Boundary- the lands included within the 1986 U. S. Army Corps of Engineers Environmental Impact Statement boundary.

Recharge- the process by which water is added to a zone of saturation (i.e. aquifer), either by direct return to a formation, or indirectly by way of another formation.

Surficial Aquifer- the saturated portion of the hydrologic unit nearest to the land surface, comprised principally of undifferentiated deposits of sand, silt and clay.

Unit Operations- include the repetitive steps of the mining operation necessary for ore recovery such as land preparation, stripping, ore recovery, and ore pumping.

Upper Floridan Aquifer (UFA)- the upper portion of the Floridan Aquifer.

Vertical Leakage- ground water conducted vertically (up or down) through permeable strata.

DRAFT SUPPLEMENTAL
ENVIRONMENTAL IMPACT STATEMENT
ON
WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.
(d/b/a PCS PHOSPHATE—WHITE SPRINGS)

SECTION 404, CLEAN WATER ACT, PERMITTING CONTINUED MINING
OPERATIONS OF PCS PHOSPHATE AT
HAMILTON COUNTY MINE
HAMILTON COUNTY, FLORIDA

1. PROJECT PURPOSE AND NEED

1.1. PROJECT AUTHORITY.

1.1.1. INITIAL AUTHORIZATION.

On February 11, 1980, the EPA, Region IV requested that the District assert discretionary authority over all wetlands within the Occidental Chemical Agricultural Products, Inc. (Occidental) [predecessor to PCS Phosphate-White Springs] project area, based on concerns for habitat loss and potential water quality impacts on the Suwannee River. The location of the project area is shown in Figure 1. The District asserted discretionary authority on June 17, 1980. The District Engineer determined that an EIS would be required on January 8, 1981.

Under Section 404 of the Clean Water Act, the U. S. Army Corps of Engineers (ACOE) issued an Environmental Impact Statement (EIS) in February 1986 for Occidental in Hamilton County. The 1986 EIS considered various alternatives for mining and reclamation/mitigation for the purpose of producing phosphate ore. The EIS was supported by a Technical Background Document (TBD) that was completed in 1985. Various regulatory decisions were made by the ACOE (and other regulatory authorities) in the years following finalization of the EIS.

Based on the EIS and a 1987 Memorandum of Understanding (MOU) among the Occidental Chemical Agricultural Products, Inc. (Occidental), EPA, and the Florida Department of Environmental Regulation (now Department of Environmental Protection (FDEP)), the Corps of Engineers issued a long-term permit for mining and mining operations in approximately 7,500 acres of wetlands on October 7, 1987. That permit is scheduled to expire on October 7, 2002. Figure 2 shows the areas preserved from mining by the terms of the MOU (over 19,000 acres), cumulative areas permitted in prior actions or disturbed prior to assertion of jurisdiction by the ACOE (approximately 46,000 acres), and the evaluation area for this project (approximately 36,000 acres). The 1987 ACOE permit incorporated the terms of the 1987 MOU by reference. Figure 3 shows the breakdown of areas categorized by the 1987 MOU.

This Draft Supplemental Environmental Impact Statement (DSEIS) is to include an additional 1,858 acres of wetland jurisdiction and reclaim 2,061 acres of wetlands as partial mitigation for the impacts within a 19,077 acre footprint. Permitting of the areas included in the PCS application will provide over 300,000,000 person-hours of employment.

1.1.2. SUPPLEMENTAL INFORMATION.

In 1995, Potash Corporation of Saskatchewan acquired the White Springs operations from Occidental and the Hamilton County facility has continued operations as PCS Phosphate-White Springs (PCS) Hamilton County Mine (HCM). In 1997, PCS approached the ACOE about permit needs to continue operation beyond the October 7, 2002, expiration date of the current permit. The ACOE directed PCS to update the 1985 TBD and the 1986 EIS and produce a Supplemental TBD (STBD) and Supplemental EIS (SEIS). Based on the alternative selected in the SEIS, PCS would then apply for a "life of mine" permit to complete operations within the EIS project boundary. The STBD was published on January 24, 2000 and an Addendum to the STBD was published on November 27, 2000.

As per the guidance on supplemental EISs, this SEIS and the STBD do not repeat information contained in the original EIS that is still valid. The original 1985 TBD and 1985 DEIS are available online at <http://www.saj.usace.army.mil/permit/occidental.htm>. [sic]. A copy of the information page is included in Appendix C.

1.2. PROJECT LOCATION.

The PCS project area covers 100,580 acres in southeast Hamilton County, Florida (Figure 1). The area is approximately 40 miles south of Valdosta, Georgia and 60 miles west of Jacksonville, Florida. It is located within the Upper Suwannee River Basin that encompasses a total of 9,950 square miles in Florida and Georgia (926 square miles are within Florida). Most of the river flow passing the HCM originates in the Okefenokee Swamp, which results in the waters being very darkly colored and acidic. Landuse in the basin is primarily silviculture and agriculture. Population in the upper basin is low. Figure 4 shows the pre-mining (pre-phosphate operations) landforms within the project area. Figure 5 shows the affected environment (landforms that would exist after reclamation activities were completed should the permit being requested not be issued). This is called the "affected environment" in the impact analysis (see section 3). Figure 2 shows the breakdown of areas within the project area based on their current regulatory status.

1.3. PROJECT NEED OR OPPORTUNITY.

The White Springs Agricultural Chemicals, Inc. (d/b/a/ PCS Phosphate – White Springs) (PCS) proposes to discharge dredge/fill material into 1,858 acres of jurisdictional wetlands to facilitate a continuation of mining operations within a 100,580 acre project area located in Hamilton County, Florida. PCS mines phosphate ore and processes it into a variety of fertilizer and animal feed supplement products. Operations began at the Hamilton County location in 1965 as Occidental Chemical Company (OCC). Facilities were added and expanded incrementally, with the opening of the Swift Creek Chemical Complex (SCCC) completing the major facilities in 1979. The SCCC was subject to an EIS produced by the U.S. Environmental Protection Agency (USEPA) in September 1978 (EPA 904/9-78-020). Mining operations were consolidated as the Hamilton County Mine (HCM) in the early to mid-1990's, while chemical processing operations continue at the Suwannee River and Swift Creek Chemical Complexes. Potash Corporation of Saskatchewan acquired the facilities from Occidental in 1995. Potash Corporation of Saskatchewan is the world's largest integrated fertilizer manufacturer, with world scale capacities in the production of potash, phosphate, and nitrogen.

Phosphate is an essential nutrient for plants and animals for which there is no known synthetic substitute. Phosphate is mined in the United States for fertilizer and animal feed supplements almost exclusively in Florida and North Carolina (85% of the U.S. production). Phosphate rock and the various products derived from it support food production worldwide.

Should the requested permit not be issued, the mine life would be shortened by at least 10 years. This would result in the loss of a valuable natural resource necessary for food production and approximately 300,000,000 person hours of employment.

1.4. AGENCY GOAL OR OBJECTIVE.

The agency goal is to objectively evaluate all alternatives, seek public and cooperating agencies' input, and select the best alternative. The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, landuse, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

1.5. RELATED ENVIRONMENTAL DOCUMENTS.

As noted above, various related environmental documents have been produced. These include:

- Technical Background Document: Environmental Evaluation of Existing and Proposed Mining Operations; May, 1985;
- Draft Environmental Impact Statement, Section 404, Clean Water Act; 1985 DEIS
- Final Environmental Impact Statement, Section 404, Clean Water Act: Environmental Evaluation of Existing and Proposed Mining; February, 1986;
- Final Plan of Study: Supplemental Technical Background Document for an Ecosystem Management Agreement; September, 1998;
- Supplemental Technical Background Document in Support of a Supplemental Environmental Impact Statement and an Ecosystem Management Agreement; January, 2000;
- Addendum to Supplemental Technical Background Document in Support of a Supplemental Environmental Impact Statement and an Ecosystem Management Agreement; November 2000.
- Records of Ecosystem Management Team Advisory Team meetings; January 1998 – September 2001 (<http://www.dep.state.fl.us/northeast/admweb/pcsprogram/pcsmmin.htm>)

1.6. DECISIONS TO BE MADE.

This Supplemental Environmental Impact Statement will evaluate whether to permit 1,858 acres of ACOE jurisdictional wetlands for mining and, if so, evaluate alternatives to accomplish that goal. These acres will be mitigated for with 2,061 acres of wetlands. The decision will be part of a comprehensive set of federal, state and county actions that will provide PCS with the authorizations it needs to operate their Hamilton County mine for its remaining projected mine life. Wetland impacts covered under this permit will be mitigated for onsite and will include commitments outlined in a PCS May 29, 2001 (Appendix C) letter to the federal, state and county organizations involved in this process. The preferred alternative/application footprint includes the 1,858 acres of jurisdictional wetlands and 4,452 acres of isolated wetlands.

1.7. SCOPING AND ISSUES.

Efforts to develop the plan of study for the STBD and for this SEIS began in late 1997. The ACOE directed PCS to prepare a SEIS to update the 1986 EIS. PCS worked with the various local, state and federal agencies, environmental groups and interested parties to develop a draft Plan of Study (POS) for the STBD, which was to contain the technical information and analyses to support the SEIS. The formal Public Notice requesting comments on the draft POS was published by the ACOE on June 19, 1998. The ACOE published an intent to prepare a Draft Supplemental Environmental Impact Statement (SEIS) in FR/Vol. 63, No. 126/Wednesday, July 1, 1998/Notices (Appendix C). Several meeting with federal, state, and county organizations and environmental groups and the public were held to discuss the POS and obtain public input. On September 25, 1998, PCS published the final POS for the STBD.

The EMAg members and interested public met on the following dates to discuss issues related to the environmental evaluations and studies for the DSEIS and various permits needed by PCS. Records of these meetings can be found at the following address:

<http://www.dep.state.fl.us/northeast/admweb/pcsprogram/pcsmmin.htm>

January 30, 1998	July 28, 1999
February 26, 1998	August 26, 1999
March 26, 1998	September 14, 1999
April 30, 1998	October 14, 1999
May 28, 1998	December 9, 1999
June 29, 1998	February 22, 2000
July 30, 1998	April 22, 2000
October 1, 1998	June 22, 2000
November 10, 1998	August 17, 2000
December 10, 1998	October 18, 2000
January 14, 1999	November 7, 2000 (meeting of regulatory authorities referenced in November 28, 2000 letter Appendix C)
February 23, 1999	
March 25, 1999	January 18, 2001
April 29, 1999	July 9, 2001 (meeting of regulatory authorities)
June 10, 1999	September 6, 2001

1.7.1. ISSUES EVALUATED IN DETAIL.

The following issues were identified during scoping and by the preparers of this Environmental Impact Statement to be relevant to the proposed action and appropriate for detailed evaluation:

- Wetland boundaries
- Wetland jurisdiction (revised to conform to the January 9, 2001 US Supreme Court decision, Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, No. 99-1178 (SWANCC))
- Best type of mitigation (conventional, pre-modification or alternative/offsite, post-modification)
- Location of settling areas
- Potential Net Ecosystem Benefits
- Wetland evaluation criteria

- Long-term landuse
- Threatened and endangered species
- Socioeconomic impact on county and employees

1.7.2. IMPACT MEASUREMENT.

Impacts due to each of the alternatives are actually very similar in nature, except for the no action alternative, Alternative A: No wetlands mining or mine support within the unpermitted or undisturbed areas. There are no unique or special wetlands being proposed for mining. Please refer to Section 2.7 for a discussion of previous identification and protection of perceived higher quality wetlands. The ACOE and DER hydrologically connected wetlands are of more concerns simply due to their proximity to small streams.

All of the alternatives were evaluated in comparison to the “affected environment” as defined in 40 CFR 1502.15. It is the conditions that would exist in the area in the absence of the proposed project. This includes the reclamation that would be completed for areas that have been or will be mined under the no action alternative, Alternative A. All of these wetlands were carefully evaluated and their mitigation carefully designed to prevent any failures or offsite impacts. The details are provided in the joint ACOE and FDEP application. Each alternative and the activities included in the application include proposed mitigation to offset the impacts of the mining activities. As the mitigation compensates for the impacts of each alternative, comparisons among the alternatives is difficult. Mining is a temporary impact due to the reclamation and mitigation that goes hand in hand with the mining. It should be noted that the mining and reclamation activities occur over extended time periods. The timing between mining and reclamation is roughly the same regardless of the alternative. Only the mine life and acres impacted differ. Both federal and state laws require mitigation and reclamation of the land that is mined. Given the above, the main differences among the alternatives are the socioeconomic impacts.

1.7.3. ISSUES ELIMINATED FROM DETAIL ANALYSIS.

All issues identified in the scoping process were addressed in the EMAG process or evaluated in the STBD and this DSEIS.

Continued on next page

1.8. PERMITS, LICENSES, AND ENTITLEMENTS.

The following existing permits are relevant to the mining operations.

Agency	Type	Area	Permit Number	Expiration Date
ACOE	Dredge/Fill	Mine-wide	198404652(IP)	Oct.7, 2002
FDEP	Dredge/Fill	Swift Creek	241341569	May 30, 2015
FDEP	Dredge/ Fill	Cabbage Head	0144913-002	Oct. 13, 2004
FDEP	Dredge/Fill	Roaring Creek	0144913-001	Dec.5, 2004
FDEP	NPDES/IW	Suwannee River facility	FL 0000655	May 28, 2002
FDEP	NPDES/IW	Swift Creek facility	FL 0036226	May 28, 2002
FDEP	Conceptual Reclamation Plan	Hamilton County Mine	PCS-HC-CP	Life of Mine
FDEP	Reclamation Programs	Individual areas of the Hamilton County Mine	Various	Upon release
SRWMD	Consumptive Use	Suwannee River facility	2-84-00701	May 16, 2005
SRWMD	Consumptive Use	Swift Creek facility	2-84-00703	May 16, 2005
Hamilton County	Conceptual Reclamation	Mine-wide	SP-96(4)	Duration of operations in permitted area

1.9 ACOE WETLAND JURISDICTIONAL DETERMINATION

The ACOE jurisdiction changed dramatically during the preparation of the DSEIS. The SWANCC January 9, 2001 U. S. Supreme Court decision substantially reduced the federal wetland jurisdiction within the project area. However, the process used to develop the wetland boundaries for the PCS supplemental EIS remains valid. The process is described below.

For the 1985 EIS the wetland and upland vegetation and landuses were mapped using false color infrared aerial photography (scale 1:12,000), flown November 30 and December 19, 1979 by Kucera and Associates, Inc. Maps prepared from the 1979 photography were updated by inspection of January 1981 black and white photography provided by OXY (now PCS) to note significant landuse changes since the 1979 photography. Initial ground-truthing was conducted to gain site familiarity and to determine vegetative composition of the various photographic signatures. Photo interpretation was performed utilizing either a Bausch and Lomb or Zeiss stereoscope. Wetlands vegetation was delineated and classified to the dominance level of the USFWS classification (Cowardin et al. 1979) and to Level III of the Florida Landuse and Cover Classification System (Florida Dept. of Admin. 1976). Upland areas were mapped to Level III of the Florida Landuse and Cover Classification System (FLUCCS) (Fl. Dept. of Admin. 1976).

Field verification of the photo interpretation was performed by randomly sampling 5% of the wetland units for accuracy of classification. Also, contiguous 2.5 acre areas of uplands extending out in the four cardinal directions from the randomly selected wetlands were ground-truthed. The resulting maps were reviewed and random field verifications were made by the ACOE, USEPA and FDEP.

In order to prepare wetland and landuse maps for the supplemental EIS and to take advantage of new digital technology, Digital Orthophoto Quarter Quads (DWQQ) created by the USGS and processed by the Suwannee River Water Management District (SRWMD) were selected. The color infrared pictures were acquired during the dry season of 1994, 1995, and 1996 at the scale of 1:40,000. The aerial photos were scanned at approximately one-meter ground resolution. Survey points and a digital elevation model were used to compute a transformation model for each photo. The raw data were then resampled into orthophoto format using cubic convolution resampling method. The coordinate system of the DOQQ is UTM, Zone 17, NAD83 datum. The positional accuracy of the data, according to USGS, is better than the 1:24,000 scale quadrangle. The 1994 photography was updated by inspection of March 17, 1999, black and white aerial photographs provided by PCS to note significant landuse changes or wetland conditions since 1994. Field verification was performed when necessary.

The original wetland delineations for the original EIS were scanned to create a digital file rectified to the 1994 USGS files and plotted on the new 1994 USGS aerals. The lines were adjusted as necessary to reflect the increased resolution of the USGS aerals. These lines were presented to the technical wetland evaluation team and carefully reviewed in January 1999. After careful and thorough review, 38 areas were identified for additional ground truthing. Members of the wetland evaluation team visited several of these sites. PCS team members visited the remainder. Results of the site visits were reported to the entire team in February 1999. Adjustments to the lines were made where appropriate. In June 1999 the final maps were reviewed with the ACOE.

At the request of the ACOE, soils profiles were taken on each side (in the uplands and within the wetland) of the wetland boundaries at one location for most of the wetland evaluation areas within the project area. Wetland delineation forms for normal and atypical situations as appropriate from the ACOE 1987 "Wetlands Delineation Manual" were used. The locations of the soil profiles were flagged, surveyed, and plotted on aerals.

The locations of the borings were derived using the Leica RTD (real time differential phase) GPS System 300 and tradition Leica survey instrumentation. The System 300 utilizes "state of the art" GPS technology to calculate a location in real time with sub-centimeter accuracy. All the soil borings were located using the standard real time mode with a minimum of 6 satellites visible and a maximum GDOP (geometrical dilution for precision) of 5. Redundant ties at the GPS points were recorded utilizing different satellite geometry. Base station sites utilized were NGS (National Geodetic Survey) points established using classical geodetic methods and adjusted by the NGS. PCS established points used as base station sites using established GPS networking techniques and adjusted using software provided by Leica Geosystem Inc. or using redundant ties utilizing different satellite geometry.

Where possible, the boring sites were tied directly with GPS instrumentation. In the locations with a heavy overstory, points were established in a nearby clearing using GPS instrumentation and the boring sites side-tied with traditional survey instrumentation. Standard survey techniques were employed to insure the accuracy of the surveys. The soils data were given to the ACOE in March 2000.

PCS received a June 30, 2000 letter (Appendix C) from the ACOE that confirmed that the wetland boundaries were approved by the federal agencies. This letter also stated that the boundaries established the federal jurisdiction, which they did at that time. That jurisdiction was substantially reduced by the SWANCC US Supreme Court decision of January 9, 2001.

The new jurisdiction was established based on the SWANCC and the following set of procedures and assumptions (Figure 6). The wetland boundaries were established by the interagency technical working group and formalized by the June 30, 2000 ACOE letter to PCS (Appendix C).

Procedures/assumptions used in categorizing wetlands within the PCS study area planned for mining activities after 01/01/2002

1. Only wetlands within proposed mining blocks within the project area, but outside of currently permitted areas were addressed. Jurisdiction within the currently permitted areas was not re-evaluated.
2. All determinations were based on detailed review of the false color 1994 infrared USGS ortho digital quads used for the supplemental EIS work. The reviews were done on the computer so that specific details could be zoomed in on to an approximate scale of 1" = 200' by using the 2 meter quarter quads. Knowledge of specific physical features was considered, but no field verification was performed.
3. DER hydrologically connected jurisdictional wetlands were assumed to be US "waters" as defined by 33 CFR Part 328.3 a. 1,2,4,5,6,7, and 8 unless the DER jurisdiction resulted from negotiated preservation areas which were subsequently given jurisdictional status based on negotiations and not technical determinations.
4. "Adjacent" wetlands were included in the ACOE jurisdiction category based on the definitions contained in 33 CFR Part 328.
5. Wetland polygons were considered fixed as determined by the ACOE in the formal jurisdictional June 30, 2000 letter (Appendix C). If wetland polygons touched DER hydrologically connected jurisdictional wetlands, they were considered "adjacent" and included as ACOE jurisdiction. If wetland polygons lay within 300-400 feet of US "waters" they were included as ACOE jurisdiction if any suggestion of a jurisdictional connection was apparent.
6. Wetlands that could not be clearly placed in either ACOE jurisdiction or Isolated categories without consultation with the ACOE or field inspections were placed in an "Undetermined" category.

The results were presented to both the EPA and the ACOE and documented in a May 29, 2001 letter from PCS to the county, state and federal agencies (Appendix C). A meeting was held on July 9, 2001 to discuss the PCS proposal. The permitting group subsequently gave their general approval to the PCS proposal to resolve the isolated wetland jurisdiction determination and move forward in the permitting effort.

2. ALTERNATIVES

In order to evaluate various options for mining and reclamation, it is necessary to identify realistic and feasible alternatives (i.e. practicable alternatives as defined in 40 CFR 230.3.q.) that could be considered for continuation of PCS' operations in Hamilton County. Since it is not realistic or necessary to identify all possible alternatives, an attempt was made to "bracket" the various options with respect to the extent of mining and possible impact on the environment. The range of alternatives evaluated, from the "no additional mining" (no project) alternative, to "mine everything" alternative, is necessary and required under the National Environmental Policy Act (NEPA) for the production of an Environmental Impact Statement (EIS). As stated previously, an EIS was prepared in the mid 1980s that covered the entire 100,580 acre project.

The alternatives described below address various options for future additional mining beyond what has already been authorized. As such, areas previously permitted or disturbed (prior to the need for permits) are considered only to the extent they support future mining in other parts of the project boundary. For example, some alternatives for future additional mining may generate a need for additional clay management areas within portions of the project boundary that were previously permitted or disturbed. Since mining and reclamation has been authorized but not complete in some areas and in conformance with NEPA regulations, the "affected environment" was determined to be the condition within the project boundary that would exist after completion of all currently authorized activities. This condition forms the baseline to which all alternatives are compared.

When the alternatives were originally conceived and evaluated, the ACOE jurisdiction included all wetlands. In January 2001, the US Supreme Court ruled that section 404 of the Clean Water Act jurisdiction does not include isolated wetlands (SWANCC). There are approximately 6,310 acres of wetlands within the proposed mining footprint. Of these, 1,858 acres were identified as jurisdictional (Figure 6). Please see section 1.9 for details on issues related to the change in ACOE jurisdiction. All of the alternatives were evaluated in the STBD (2000) under the more extensive jurisdictional assumptions in place prior to January 2001. The preferred alternative that forms the application is based on an interpretation of current jurisdictional guidelines and assumptions, based on SWANCC and the regulations.

The estimated years of mine life were based upon continuous operations at a consistent production rate until all the reserves are mined. Experience has demonstrated that production levels and mining rates vary widely over time. The estimated years of mine life are valid for comparison of alternatives, but should not be viewed as a limitation on the duration of permitted operations. PCS requests a permit based on areas to be mined, not time. All alternatives evaluated are incremental to the currently permitted operations.

Impacts due to the alternatives are difficult to distinguish in many respects as each alternative includes a reclamation/mitigation plan that is specifically designed to minimize or eliminate the impacts from the mining. Mining impacts are temporary in most aspects as no long-term alterations occur that permanently reduce productivity or eliminate natural communities. It should be noted that the mining and reclamation activities occur over extended time periods. The timing between mining and reclamation is roughly the same regardless of the alternative. Only the mine life and acres impacted differ. PCS's HCM currently operates within a 46,000 acre previously disturbed or permitted footprint. None of the alternatives will significantly change the quality of water discharged from the HCM.

2.1. DESCRIPTION OF ALTERNATIVES.

2.1.1. ALTERNATIVE A: WETLAND MINING, NO ACTON (PROJECTED STATISTICAL MINE PLAN BASIS)

This alternative assumes that all upland areas 40 acres or greater in areal extent that contain reserves or may contain mineable quantities of phosphate are mined. No wetlands are mined in the Alternative A evaluation area except for the interim permit area as discussed in Section 1 (STBD, 2000). No preservation areas are scheduled for mining, but some small areas may be affected on a limited basis for mine support corridors. A total of 2,841 acres of mining are projected for Alternative A. This figure represents the projected mining in the evaluation area and is equivalent to approximately 3 years of mine life. The excavation quantities were calculated to be 155,941,021 total cubic yards for the evaluation area at an average yearly rate of 46,685,258 yards per year.

Clays generated by Alternative A can be contained in the clay settling areas (CSA) identified in the Conceptual Reclamation Plan (CRP, 1995). No additional settling areas over those planned for construction inside the previously permitted and disturbed area would be needed.

Sand tailings were deposited in mine cuts and on exhausted clay settling areas. An equivalent tonnage of sand generated from the mining blocks outside the previously permitted and disturbed areas was deposited in mine cuts outside the previously permitted and disturbed area.

Of the areas mined in Alternative A, some 1,317 acres were devoted to Tails Fill reclamation and 1,524 acres to Land and Lakes reclamation. No areas were devoted to construction of clay settling areas.

Category	Acres
Total area mined	2,841
Uplands mined	2,841
Wetlands mined	0
Years added to mine life	Approx. 3 years
Additional acres needed for clay disposal	0
Reclamation Types	
Land & Lakes	1,524
Tails fill	1,317
Clay	0

2.1.2. ALTERNATIVES B: MINING OF ALL RESERVES INCLUDING WETLANDS (PROJECTED STATISTICAL MINE PLAN BASIS)

This alternative assumes that all areas within the evaluation area that contain at least 40 contiguous acres of mineable ore are mined whether under wetland or upland. No preservation areas are scheduled for mining, but some small areas may be affected on a limited basis for mine support corridors. This alternative projects an approximate total of 16,298 acres mined over about 20 years. The excavation quantities would be 969,889,813 total cubic yards for the evaluation area at an average yearly rate of 49,503,803 total cubic yards.

Six additional settling areas (2,870 acres) over and above those identified in the Conceptual Reclamation Plan would be needed to contain the clays generated in this alternative. The additional settling areas would be located adjacent to and would be incorporated into the existing CSA system to the greatest extent possible. In order to minimize areal impact, several of the settling areas are modeled to operate at a higher elevation than the typical elevations utilized by PCS. Reduction in operating height from these proposals will require either additional surface area dedicated to clay storage or reduction in mining life.

Sand tailings were used for backfill of mine cuts, dam construction, and capping of settling areas. Priority use of sand tailings included the reclamation of FDEP wetlands and Deferral Areas where mined. Mudballs generated from washer processing were scheduled for placement on exhausted clay settling areas located in the previously permitted and disturbed area. Tails fill reclamation was the primary type of reclamation in this reclamation plan. Some 8,667 acres of mining were devoted to Tails Fill reclamation. Land and Lakes accounted for 4,761 acres and 2,870 acres were dedicated to clay storage, ultimately being reclaimed as Elevated Fill area.

Category	Acres
Total area mined	16,299
Uplands mined	11,140
Wetlands mined	5,159
Years added to mine life	Approx. 20 years
Additional acres needed for clay disposal new areas	2,870 6 additional settling areas
Reclamation Types	
Land & Lakes	4,761
Tails fill	8,667
Clay	2,870

2.1.3. ALTERNATIVE C: MINING OF ALL KNOWN RESERVES INCLUDING WETLANDS EXCLUDING DER JURISDICTIONAL AND DEFERRAL WETLANDS (PROJECTED STATISTICAL MINE PLAN BASIS)

This alternative assumes that all areas, except for the Deferral Areas and FDEP jurisdictional areas, within the evaluation area that contain at least 40 contiguous acres of mineable ore are mined whether under wetland or upland. No preservation areas are scheduled for mining, but some small areas may be affected on a limited basis for mine support corridors. This alternative projects an approximate total of 14,005 acres mined over about 16 years. The excavation quantities were calculated to be 795,029,901 total cubic yards for the evaluation area at an average yearly rate of 49,503,803 total cubic yards.

Sand and clay placement in this Alternative is the same as Alternative B except that less clay, tailings, and mudballs are generated due to the reduction in mining acres between the two Alternatives.

Under the Alternative C mine plan and Reclamation plan, 6,489 acres of mined area would be devoted to Tails Fill Reclamation, 4,645 acres devoted to Land & Lakes Reclamation and 2,870 acres to Elevated Fill after use as clay settling areas.

Category	Acres
Total area mined	14,005
Uplands mined	10,357
Wetlands mined	3,648
Years added to mine life	Approx. 16 years
Additional acres needed for clay disposal new areas	2,870 6 additional settling areas
Reclamation types	
Land & Lakes	4,645
Tails fill	6,489
Clay	2,870

2.1.4. ALTERNATIVE D: MINING OF ALL KNOWN RESERVES (as of November 2000)
INCLUDING WETLANDS (PROSPECT & LANDOWNER AGREEMENT MINE PLAN BASIS)

This alternative assumes that all areas within the evaluation area that contain at least 40 contiguous acres of mineable ore are mined whether under wetland or upland. No preservation areas are scheduled for mining, but some preservation areas may be affected on a limited basis by mine support corridors as contemplated in the 1987 MOU and discussed in Section 2.1 (Addendum to STBD, 2000). This alternative projects an approximate total of 20,514 acres mined over about 22 years. The excavation quantities were calculated to be 1,202,209,192 total cubic yards for the evaluation area at an average yearly rate of 54,854,137 total cubic yards.

Five additional settling areas (2,893 acres) over and above those identified in the CRP would be needed to contain the clays generated in this alternative. The additional settling areas would be located adjacent to and would be incorporated into the existing CSA system to the greatest extent possible. In order to minimize areal impact, several of the settling areas were modeled to operate at a higher elevation than the typical elevations utilized by PCS. Reduction in operating height from these proposals would require either additional surface area dedicated to clay storage or reduction in mining life.

Sand tailings were used for backfill of mine cuts, dam construction, and capping of settling areas. Priority use of sand tailings included the reclamation of FDEP wetlands and Deferral Areas where mined. Mudballs generated from washer processing were scheduled for placement on exhausted clay settling areas located in the previously permitted and disturbed area.

Continued on next page

Category	Acres
Total area mined and mine support	20,514
Uplands mined	13,802
Wetlands mined	6,712
Years added to mine life	Approx. 22 years
Acres needed for clay disposal new areas	2,893 5 additional settling areas
Reclamation	
Land & Lakes	8,392
Tails fill	8,333
Clay	2,893

2.1.5. APPLICATION FOOTPRINT/PREFERRED ALTERNATIVE: MINING OF ALL KNOWN RESERVES (as of July 2001) INCLUDING WETLANDS (PROSPECT AND LANDOWNER AGREEMENT MINE PLAN BASIS)

The ACOE application footprint contains approximately 19,077 acres. Mining or mine support activities will be conducted within these areas. Ditches and/or berms will isolate activities within this footprint from adjacent uplands and wetlands. All water within these areas will be captured and become part of the mine water system. It will only be released from the site through permitted discharge points and after it meets the permit limits to insure no adverse impacts to water of the U.S. or State.

There are 1,858 acres of ACOE jurisdictional wetlands within the footprint. The footprint also includes an additional 4,452 acres of other wetlands. All of the 6,310 acres of wetlands are regulated by BOMR and Hamilton County. The 1,858 acres of ACOE jurisdiction will be mitigated for by reclaiming 2,061 acres of wetlands. These mitigation acres will be considered "Tier 1" which means that they have detailed design, monitoring and release criteria, many of which go beyond requirements in the applicable regulations (see Works in the Waters of Florida for Wetland Resource Alterations(Dredging and Filling) for details). Other commitments of PCS described in the application provide additional mitigation.

This alternative assumes that all areas within the application footprint that contain at least 40 contiguous acres of mineable ore are mined whether under wetland or upland. No preservation areas are scheduled for mining, but some preservation areas may be affected on a limited basis by mine support corridors as contemplated in the 1987 MOU and discussed in Section 2.1 (Addendum to STBD, 2000). This alternative projects an approximate total of 19,077 acres mined over about 28 years. The excavation quantities were calculated to be 1,200,324,840 total cubic yards for the evaluation area at an average yearly rate of 42,868,744 total cubic yards.

Five additional settling areas (3,285 acres) over and above those identified in the CRP would be needed to contain the clays generated in this alternative. The additional settling areas would be located adjacent to and would be incorporated into the existing CSA system to the greatest extent possible. In order to minimize areal impact, several of the settling areas were modeled to operate at a higher elevation than the typical elevations utilized by PCS. Reduction in operating height from

these proposals would require either additional surface area dedicated to clay storage or reduction in mining life.

Sand tailings were used for backfill of mine cuts, dam construction, and capping of settling areas. Priority use of sand tailings included the reclamation of FDEP wetlands and Deferral Areas where mined. Mudballs generated from washer processing were scheduled for placement on exhausted clay settling areas located in the previously permitted and disturbed area.

Category	Acres
Total area mined	19,077
Uplands mined	12,766
Wetlands mined	6,310
Years added to mine life	Approx. 28 years
Additional acres needed for clay disposal new area	3,285 5 additional settling areas
Reclamation types	
Land & Lakes	5,996
Tails fill	10,203
Clay	2,878

2.2. ISSUES AND BASIS FOR CHOICE

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, landuse, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

Wetland reclamation has become an accepted practice to mitigate for wetland mining impacts. The only issues relate to the wetland design and establishment practices. PCS has successfully reclaimed approximately 2,600 acres of wetlands at the Hamilton County Mine. Approximately 309 acres have been released by the BOMR and approximately 2,300 acres have met all of the initial requirements and are in the five year extended establishment period. Given PCS's successful wetland reclamation and the ability to provide high paying jobs, tax payments, other economic benefits and the lack of any significant adverse environmental impacts it seems prudent and socially and environmentally correct to issue a mining permit to allow PCS to continue their mining operations. The avoidance and minimization was accomplished through the 1987 MOU, which formed the basis for the first ACOE mining permit. Please refer to section 2.7 for details of the MOU. Table 1 compares the alternatives.

2.3. PREFERRED ALTERNATIVE(S)

The preferred alternative is included in the application. It includes plans to mine or disturb 1,858 acres of jurisdictional wetlands (Figure 6) and reclaim 2,061 mitigation wetland acres within a 19,077 acre footprint. It resulted from a change in the ACOE jurisdiction and the public EMAG process that served to build consensus for an alternative that would allow PCS to recover a valuable natural resource while minimizing adverse environmental impacts. In addition to the jurisdictional wetlands, approximately 4,452 acres of ACOE isolated wetlands would be mined and reclaimed in accordance BOMR and Hamilton County regulations. All of these wetlands will be in the overall ACOE application footprint, which includes 19,077 acres.

2.4. ALTERNATIVES ELIMINATED FROM DETAILED EVALUATION

All of the alternatives identified as feasible during the scoping process were evaluated in the STBD (2000). However, some of the federal, state and county organizations expressed concerns about the off-site reclamation/mitigation being evaluated as part of the EIS process. These alternatives and options were addressed in the STBD (2000), combined alternative standards/land acquisition form of mitigation was eliminated based on agreements between PCS and the regulatory authorities. The agreement is detailed in a November 28, 2000 letter from PCS to the agencies (Appendix C). Therefore these alternatives are not addressed in the DSEIS.

2.5. ALTERNATIVES NOT WITHIN JURISDICTION OF LEAD AGENCY

Alternative A, "No Mining or mine support within wetlands," would not require a permit from the ACOE.

2.6. COMPARISON OF ALTERNATIVES

Table 1 lists alternatives considered and summarizes the major features and consequences of the proposed action and alternatives. See section 4.0 Environmental Effects for a more detailed discussion of impacts of alternatives.

2.7. MITIGATION

2.7.1. MINIMIZATION AND AVOIDANCE

The avoidance and minimization analysis required by Federal Regulation and the "public interest" review for both the state and federal interests were completely addressed during the previous EIS and permitting efforts. The company, the EPA, and the Florida Department of Environmental Regulation (DER, now FDEP) entered into a Memorandum of Understanding (MOU) in 1987 in order to formalize and document this process. This MOU provided the basis for EPA and DER to concur in the issuance of the requested ACOE Section 404 permit. The MOU represented a review of the entire project area, including the alternatives analysis in the EIS. It incorporated the results of a detailed examination of wetlands within the project boundary by a variety of federal and state agencies and other interested parties. The 1987 MOU directly addressed both the 1987 permitting and all future permitting within the project area. Among its most important terms was the categorization of wetlands within the project boundary. Based upon review of data compiled for the EIS and extensive fieldwork, wetlands were divided into the following categories:

Preservation: The highest quality, most sensitive wetlands, and the 100-year floodplain of the Suwannee River were designated for permanent preservation from the company's mining operations. Over 19,000 acres were identified for preservation. Preservation of these areas was to be accomplished by the transfer of the company's mining rights to public ownership or, where the company did not own such rights, a binding agreement not to acquire the right to mine or disturb

the areas. The State of Florida designated the Suwannee River Water Management District as the appropriate entity to receive those transfers and commitments. The transfer of existing mining rights was begun in 1990 with the company's interest in the 100-year floodplain of the Suwannee River. The actual areas transferred and made subject to the binding commitment are shown on Figure 7. The process was completed in 1997. Based upon the terms of the 1987 MOU, the company does not anticipate designation of additional preservation areas.

Conditional: Permitting of these areas, which included most of Swift Creek Swamp and a portion of Lower Bee Haven Bay, was made conditional upon the company's successful demonstration of forested wetland reclamation through a detailed monitoring program over a six-year period on four selected wetland reclamation sites. That demonstration was completed on schedule in 1993, whereupon the ACOE, with agreement from EPA and FDEP (EPA, June 28, 1994; ACOE August 25, 1994 approval letters in Appendix C), acknowledged the demonstration of success and the conditional areas were approved for operations under the terms of its 1987 permit (see below).

Deferral: All parties agreed to defer the permitting decision on these areas until the anticipated second major ACOE permit. Portions of these are included in this application.

Permittable: Terms were specified in the 1987 MOU for permitting of all remaining wetlands within the project boundary under standard regulatory programs. Except for the deferral areas noted above, all wetlands proposed for evaluation in the current process, as well as those permitted in the prior process, are covered by these terms.

2.7.2. ADDITIONAL ENVIRONMENTAL BENEFITS

Additional environmental benefits that would occur if each of the respective regulatory authorities of the applications approve the applications in substantially the same form as presented in the Ecosystem Management Agreement (EMA).

- PCS will perform reclamation of wetlands mined after January 1, 2002 at a minimum of acre-for-acre, type-for-type (forested vs. herbaceous) ("conventional standards") within the project boundary, except for those wetlands mined after January 1, 2002 within clay settling area 10V and within the reclamation program area designated as PCS-HC-CB(9), which shall remain subject to the previously approved alternate standards. This commitment includes areas that are currently permitted as alternate standards areas; modification of the applicable reclamation/mitigation standards is incorporated in the applications.
- PCS will provide conservation easements within the Upper Suwannee River Region (or other form of permanent preservation including fee ownership) on one-third of a wetland acre per wetland acre mined (regardless of whether the mined wetlands are within the regulatory jurisdiction of any of the parties to this Agreement) in the areas covered by the Agreement. Selection of appropriate areas will be guided by the Upper Suwannee Region Land Acquisition and Management Advisory Team Strategic Plan approved by the Secretary of FDEP in April 1999. The conservation easement areas could include, but would not be required for, constructed on-site mitigation areas.
- A two-tier monitoring and release criteria system will be developed and applied. The Tier 1 system will be applicable to the mitigation projects described in the Joint ACOE/FDEP Dredge and Fill Application. These mitigation projects relate to ACOE and "DER" wetland impacts. Monitoring and release criteria are described in the applications. The design of

these projects implements the environmental enhancement concept of concentration of wetlands at the downstream limits of mining and reclamation activity in specific drainage basins. The Tier 2 system will be applicable to all other wetland reclamation areas. This tier will follow the standard (non-ERP) FDEP Bureau of Mine Reclamation criteria used for isolated wetlands in the project area as found in Chapter 16C-16, FAC (1993), now 62C-16, FAC.

- PCS will incorporate the objective of water flow across wetlands prior to discharge into the specific design and implementation of future reclamation projects. Detailed flow patterns will be created to direct upland surface runoff through wetlands to the greatest extent practicable. For land-and-lakes reclamation projects designed to discharge directly to streams, a minimum acreage of 10% of the open water surface area in that lake will be constructed as wetland at the point of discharge.
- PCS will incorporate upland mixed forest buffers adjacent to Tier 1 wetlands into the specific design and implementation of future reclamation projects.
- Assuming wetland boundaries for the project area to be as described in the June 30, 2000 ACOE delineation, PCS will not contest or seek further review of ACOE jurisdiction within the project boundary, including the extent of jurisdiction on areas previously permitted.
- PCS will provide the minimum cumulative contribution to the existing land acquisition fund required by Special Condition 6 of the January 6, 1997 modification to ACOE permit 198404652 by the contribution scheduled for the year 2007, with the amount of the minimum contribution adjusted proportionally to correspond to the wetland acres mitigated through the "post-modification" standards. The following provides the basis for the contribution adjustment and amount of the contribution that will be required.

The 1987 ACOE permit assumed the permitting of approximately 7,500 acres of wetlands. The DER permit areas were counted in the 7,500, but not actually permitted until the relevant DER permits were issued. The areas were then incorporated by reference. Subsequent mapping corrections determined that 7,318 acres of wetlands were actually covered by the permit.

In 1997 (January 6, 1997) the ACOE issued a modification to the 1987 permit, primarily to allow for alternative standards mitigation for impacts to certain of the wetlands. This modification also deleted 455 acres of wetlands and added 610 acres of wetlands, resulting in a combined permit acreage at that time of 7,469. Maps included with this modification divided the impact acres into two categories: "pre-modification" (conventional) and "post-modification" (alternate) standards. The pre-mod standards areas included both then-existing and future reclamation areas. The acreages were shown in the various documents and maps as 1,081 pre-mod and 6,388 post-mod. During the development of this application, mapping errors from that modification have been discovered. Wetland areas in the Camp Branch headwaters and the Shaky Pond area were inadvertently included on the permit maps, and were shown as subject to "post-modification" standards. There were also a number of minor mapping errors. With the correction of mapping errors as to permit coverage, the acreage covered following the January 6, 1997 modification should have been 7,260.

Current review of these maps has also revealed that 256 acres of wetlands were mistakenly identified as "post-modification" that should have been shown as "pre-modification". These are related to "DER" dredge and fill permits and were specifically excluded from the alternate standards program by the terms of the 1995 Memorandum of Agreement between the company and FDEP that established the program. These mis-identified areas are associated with the Swift Creek

Swamp (DER Permit Number 241341589, 182 acres), Green Area (Permit No. 241341609, 56 acres), and Roaring Creek (Permit No. 241089309, 18 acres) permits. The correct acreage for "post-modification" standards should have been 5,923, with the remaining 1,337 acres shown as "pre-modification" standards mitigation.

Special Condition 6 of the January 6, 1997 modification provided that mitigation for the area subject to "post-modification" standards would be accomplished through the contribution of \$15.4 million to the land acquisition fund established in the 1995 MOA. The February 4, 1998 modification to add the Cross property added 48 acres of wetlands, with an assumed contribution of \$160,000. With that adjustment, there should be in the permit 5,971 acres of wetlands subject to "post-modification" standards, mitigated for by contribution of \$15,560,000, or \$2,605.93 per wetland acre. The subsequent modifications for the interim permit area and the recharge corridor (which together added 131 acres of wetlands to the permit) do not affect this calculation because those wetlands are permitted for "pre-modification" (conventional) standards. With all these corrections and with the modifications to the permit since 1997, including the addition of the Cross property in 1998 (48 acres of wetland, "post-modification" standards) and the areas associated with interim permitting in 2000 (131 acres of wetland, "pre-modification" standards). The corrected total acreage of wetlands covered by the permit as of November 2, 2001 is 7,439. These are divided between 1,468 acres subject to "pre-modification" (conventional) standards and 5,971 acres subject to "post-modification" standards.

In addition to the permitting of new areas, this application requests modification of the mitigation standards for the wetlands remaining to be mined after 1/1/02 within the footprint of the current permit. The conversion of "post-modification" wetlands remaining to be mined after 1/1/02 (except those in SA 10 and CB 9) back to "pre-modification" (conventional) standards results in conversion of standards for 2,700 acres and therefore leaves 3,271 acres to be mitigated through the contributions. With those changes, the wetland acreage in the existing permit footprint would be 3,271 acres subject to "post-modification" standards and 4,168 subject to "pre-modification" (conventional) standards. Proportional reduction changes the minimum cumulative contribution from \$15,560,000 to \$8,523,993.

3. AFFECTED ENVIRONMENT

The Affected Environment section succinctly describes the existing environmental resources of the areas that would be affected if any of the alternatives were implemented. As per National Environmental Policy Act (NEPA) guidance, this section describes only those environmental resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those environmental resources that would affect or that would be affected by the alternatives if they were implemented. This section, in conjunction with the description of the "no-action" alternative, forms the base line conditions for determining the environmental impacts of the proposed action and reasonable alternatives.

For purposes of this study, the "affected environment" is defined as the condition that would exist within the project boundary after completion of all currently authorized mining and reclamation activities. This is consistent with, and in fact required by, the NEPA regulations. This is the state or conditions that all other alternatives were compared against in order to evaluate potential impacts.

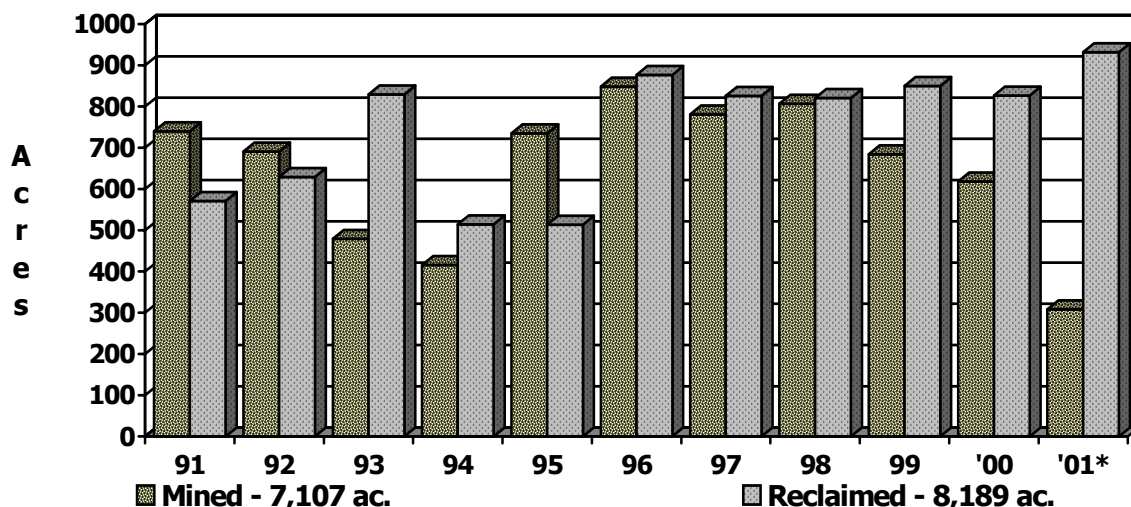
3.1. GENERAL ENVIRONMENTAL SETTING

For purposes of this study, the "affected environment" is defined as the condition that would exist within the project boundary after completion of all currently authorized mining and reclamation activities. Approximately 46,000 acres within the 100,580 acre project area have already or will be disturbed by currently or previous permitted activities. This is consistent with, and in fact required by, the National Environmental Policy Act (NEPA) regulations. The landforms that would exist given this scenario are shown in Figure 5. Tables 5 and 6 show the landuse communities within the project area and the evaluation area.

Section 3 in both the TDB (1985) and STBD (2000) give specific details on the environmental settings within the project area and evaluation area. The evaluation area (~ 36,000 acres) is the area that has not been previously disturbed or permitted, is not within any preservation from mining areas, and has not been eliminated due to ownership or inadequate ore. It is identified on Figure 2. All of the alternatives lay within this area.

All of the past mining activities have been accomplished without any significant adverse impacts. Impacts have either been or will be mitigated for through reclamation. The mining impacts are temporary given the return of the land to productive uses after mining. The following graph compares the cumulative amount of land mined and reclaimed since 1991. PCS has now reached a point that it is reclaiming more land than it mines on an annual basis. As noted in other sections, given the sequencing of mine preparation, mining and reclamation, the amount of land that is not providing ecological benefits is relatively constant. PCS is now reclaiming land as fast or faster than it is mined on a net acre basis. Since 1991 PCS has reclaimed approximately 1,000 more acres than it has mined.

Revegetation at the Hamilton County Mine will be completed to comply with appropriate FDEP rules (16C-16, FAC (1993), now 62C-16, FAC). Primary objectives will include: the replacement of pre-



mining vegetation types, where possible; providing agriculture/silvicultural opportunities; and, increasing recreational acreage's.

Restoring lands to economical uses after mining will consist primarily of returning significant portions of the mine to commercial timber operations and other agricultural uses. Pine tracts have been configured to establish large contiguous areas, where possible, to allow for hardwood forested areas and wetlands to be adjacent to the restored drainage systems.

PCS creates three general types of reclaimed landforms: sand-tailings fill areas, clay settling areas, and land and lakes areas. PCS intends to reclaim mined lands with extensive use of commercial pine forest, forested wetlands, and lake systems. All reclamation will be conducted in accordance with appropriate FDEP Mandatory Phosphate Reclamation Rules.

PCS typically plants uplands in slash, loblolly, longleaf, and/or sand pine, live and laurel oak, red cedar, sweetgum, dogwood, and red maple. Most of the upland areas, including those within clay settling areas (conventional standards), will be commercial forest plantations. Silviculture operations will provide economic value and stabilization to the clay settling sites. Slash pine and loblolly pine are the preferred pines used for silviculture operations in North Florida. Hardwoods (FLUCCS 420) are planted to improve the area's wildlife habitat value and satisfy the requirement for including at least 10% of the reclaimed uplands in mixed hardwoods. Where practical the hardwoods will be planted around reclaimed wetlands in order to create a "greenbelt". These hardwood areas (greenbelts) will be planted with a mixture of live oak, white oak, southern red oak, willow oak, and red maple. Myrtle leaf holly will also be randomly planted in these areas. The upland and hardwood trees will be planted in order to achieve a stand density of 200 trees per acre at the end of one year after planting. The grassing program may include legumes in the grass mixture for nitrogen enrichment and wildlife benefit (cover and food source). Planting legumes or providing other soil amendments will be based upon need, as delineated by location and wildlife enhancement programs. Legumes suitable for the revegetation program include white clover, sweet clover, alfalfa, and hairy indigo.

PCS has successfully reclaimed over 2,600 acres of forested wetlands over the past several years. Their techniques have been refined over time to establish a procedure that essentially guarantees

success. The species to be planted are based on what has been found in the existing wetlands onsite. Forested wetlands will be planted as isolated wetlands, restoration wetlands, restoration along creek floodplains, and adjoining isolated marshes. Forested wetland areas will be planted with a variety of tree species. The actual identity and fraction of each species will depend upon availability and soil conditions. Wetland species typically include cypress, blackgum, sweetgum, bays, pines and red maple. The wetlands will be divided into planting zones based on water depths and expected durations. The deeper areas with prolonged standing water will be planted with cypress, blackgum and water tupelo. Species planted to restore floodplain communities include red maple, water oak, laurel oak, water hickory, pop ash, sweetgum, blackgum, bald cypress and dahoon holly. In addition, cypress swamps and mixed forest systems will be created along the zones of fluctuation of lakes. Trees are obtained from State and private nurseries and/or transplants from nearby areas. Tree planting densities for wetlands will be sufficient to assure survival of at least 400 per acre at the time of release. In the past, PCS has planted 650-700 trees per acre, but this figure may be changed if indicated by experience in previously planted areas. A machine planter is typically used to plant bareroot seedlings supplemented by hand planting in areas unsuitable for machine planting for wetland and upland areas. Additional vegetation will be established by natural processes.

It has been PCS's experience that herbaceous wetland species invade naturally into any wet areas. These species will dominate even the planted wetland areas until the trees reach a sufficient height. Immature wooded wetlands would be expected to have substantial understory (herbaceous) vegetation, which would gradually recede as the wetland matures. PCS has not found it necessary to stockpile and replace muck for wetland vegetation establishment. Water sources for revegetation will be rainfall and upland runoff. If the wetland area was dewatered or rainfall is inadequate to wet the area, water is pumped over the area or the area is flooded by other means to ensure adequate moisture and prevent tree root drying. During periods of extended dryness, the inundated area will be reduced and could actually completely dry up, providing the fluctuation water regime typical of area wetlands.

3.2. VEGETATION

Classifications of landuses for the project area were based on the Florida Landuse, Cover and Forms Classification System (FLUCCS) (DOT 1985). Based on this system, 23 landuse types were identified for the project areas, approximately 100,580 acres (Tables 5 and 6, Figures 4 and 5). See Section 3.1.3.11. of the STBD (2000) for methods of classification and mapping.

The ecology or definitions of the various vegetative communities has not changed since the previous EIS. Please refer to the 1985 TBD for detailed descriptions of the communities and quantitative data on the communities.

3.3. THREATENED AND ENDANGERED SPECIES

All flora and fauna issues were addressed in detail in Section 3.1.3.7 of the 2000 STBD. The mining operation does not cause any significant adverse impacts. The minor impacts that do occur will be mitigated for as detailed in Sections 3.1.3.7.1 and 3.1.3.7.2 of the 2000 STBD. The following discussion is provided in order to provide information to initiate the federal Section 7 Consultation process that is triggered by submittal of this application.

Pete Benjamin (USFWS), John Hendrix (ACOE), and Environmental Services and Permitting, Inc. (ESP) staff discussed, via conference call on July 26, 1999, the species that could potentially be

considered as part of the Section 7 consultation for the PCS ACOE permit. The following are T&E listed species and their status that potentially might occur within the PCS project area:

FEDERAL LISTED SPECIES	STATUS	ADDRESSED PREVIOUSLY	
		1985 Section 7	1985 TBD and 2000 STBD
Flatwoods Salamander (<i>Ambystoma cingulatum</i>)	T	NO	YES
Eastern Indigo Snake (<i>Prymarchon corais couperi</i>)	T	YES	YES
Red-Cockaded Woodpecker (<i>Picoides borealis</i>)	E	YES	YES
Gray Bat (<i>Myotis grisescens</i>)	E	NO	YES
Chapman's Rhododendron (<i>Rhododendron chapmanii</i>)	E	NO	YES
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	PD	YES	YES
Wood Stork (<i>Mycteria americana</i>)	E	NO	YES

PD - potential delisting

T - Threatened

E - Endangered

Based on these discussions, it was concluded that the above list contained all species that potentially need to be addressed. It was agreed that none of the listed species should be negatively impacted by PCS's proposed mining activities. Most were addressed during the prior EIS process during which the USFWS concurred with the ACOE's determination of "no effect". It was agreed that the facts and conclusions relative to these species should still be valid. Please see Section 3.1.3.7.2. (STBD, 2000) for a detailed discussion for all of the above listed species.

The above and the field surveys, support a conclusion that no federally listed species would be adversely impacted.

The basic facts and conclusions resulting from the conference call are summarized below:

Flatwoods Salamander (*Ambystoma cingulatum*)

Environmental Services & Permitting, Inc. (ESP) performed a detailed field survey for the flatwoods salamander, please see Section 3.1.3.7.2. (STBD, 2000) for the results of the survey. The survey was performed during the prime time identified by the USFWS for locating larvae. No larvae were found. Mr. Benjamin reviewed a description of the methodology and results and reviewed examples of the sites surveyed during a field trip with ESP personnel on August 24, 1999. ESP took Mr. Benjamin to twelve of the seventeen sites, which were classified as being "potential habitat" as well as several areas that were classified as "marginal" and "non-suitable habitat". During that site visit, via personal communication, Mr. Benjamin stated that he felt that there would be no adverse impacts to any flatwoods salamander habitat, since the areas that were classified as potential habitat did not appear to have the capacity to support said populations.

Eastern Indigo Snake (*Prymarchon corais couperi*)

The eastern indigo snake should not be an issue. The U.S. Department of Interior, Fish & Service concurred with the ACOE's "no effect" determination for the Eastern indigo snake for the previous Section 7 determination. During the conference call Mr. Benjamin stated that an incidental take permit will probably be issued to cover any accidental harm that might occur during clearing or mining.

For the eastern indigo snake similar conditions as those detailed in permit modification 198404652 (IP) as approved in May 2000 are anticipated. The details include posting exhibits at several

locations at the mining site and informing personnel and visitors that it is illegal to injure or kill an eastern indigo and that if one is observed to allow it to move away from the area.

Red-Cockaded Woodpecker (*Picoides borealis*)

The red-cockaded woodpecker should be classified as "no effect" due to the lack of habitat on the project site per the Corp's Biological Assessment. The USFWS agreed with the ACOE' previous conclusion that there was not suitable habitat for red-cockaded woodpeckers on the project site, and the proposed action would not adversely impact this species. There is no reason to believe this has changed.

Gray Bat (*Myotis grisescens*)

Occurrence of the gray bat within the project area is highly unlikely due to the lack of suitable caves in the area. It was not formally addressed in the previous Section 7 consultation. This species will probably not be included in the Section 7 consultation.

Chapman's Rhododendron (*Rhododendron chapmanii*)

Chapman's Rhododendron was not formally addressed in the previous Section 7 consultation. It is unlikely that this species is present in the project area. During the conference call Mr. Benjamin stated that the current potential for this species occurring onsite might need to be evaluated. ESP agreed to review the landuse maps and identify any areas that might need to be checked in the field during the August 24th site survey. Upon review of landuse maps and the August 24th field survey no potential areas were identified.

Wood Stork (*Mycteria americana*)

No wood stork rookeries have been observed onsite. The 1985 TBD, Section 6.2.6.2, page 6-64, stated that impacts on the wood stork should be positive. Wood storks have been observed feeding and roosting in waste clay settling areas and mined areas. The wood stork was not formally addressed in the previous Section 7 consultation. A no adverse effect determination should be appropriate for this species.

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle has been proposed for delisting. However, the requirements for protection may not change significantly due to the Bald Eagle Protection Act. PCS currently has protection plans for three nests within the project boundary (Section 3.1.3.7.2. STBD, 2000). Should new nests be found, similar plans will probably be developed. Mr. Benjamin stated that he would notify PCS of any requirements that may be adopted as part of the delisting process and that no other action is needed at this time.

3.4. HARDGROUNDS

This section is not applicable to the PCS project area. It refers to a zone at the sea bottom.

3.5. FISH AND WILDLIFE RESOURCES

All flora and fauna issues were addressed in detail in Section 3.1.3.7. of the 2000 STBD. The mining operations do not cause any significant adverse impacts. The minor impacts that do occur will be mitigated for as detailed in Sections 3.1.3.7.1. and 3.1.3.7.2. of the 2000 STBD.

Generally the mining and reclamation process benefits fish and wildlife. This process creates a much more heterogeneous landscape with more habitat types and better mixes. Interim habitats created by excavation and extraction support a large number of species including several protected by the U.S. Fish and Wildlife Service and/or Florida Fish and Wildlife Conservation Commission. For example, small mammal populations on mining and processing lands were found to be more abundant than those in adjacent flatwoods (Frohlich, 1981).

The project area provides a wide diversity of habitats that serve as strong attractors for migratory wildlife. The combination of natural, active mine areas and various stages of reclaimed area provide large amounts of forage areas and habitats. This has been clearly demonstrated over the past decade by the consistently high hunter success in the PCS Wildlife Management Area operated by the FWCC. This area is actually in an active mine area within the PCS project areas. The FWCC also operates two fish management areas (Eagle Lake Fish Management Area and Lang Lake Fish Management Area) within the project area on previously mined areas.

A successful commercial hunting and fishing operation also operates on a mosaic of ~14,500 acres of natural, previously mined and reclaimed areas. A private entity recently purchased nearly 3,000 acres of reclaimed wetlands, lakes and uplands for use as a retreat and recreational area.

3.6. ESSENTIAL FISH HABITAT (EFH)

There is no essential fish habitat within the project area as defined by the Magnuson-Stevens Act. This act addresses marine and anadromous species. The proposed project is over 150 miles from the Gulf of Mexico.

In addition, almost all wetlands within the mining footprint are shallow and go dry during periods of low rainfall. There are no permanent water bodies within the mine areas. Therefore, there are no permanent fisheries within the natural areas that could be characterized as EFH within the mine and mines support footprint. The reclaimed lakes do have permanent fisheries and are often open to and utilized by the public. A commercial enterprise operates a fee fishing operation on approximately 14,500 acres of natural, mined, and reclaimed lands.

3.7. COASTAL BARRIER RESOURCES

There are no designated coastal barrier resources in the project area that would be affected by this project. The proposed project is over 150 miles from the Gulf of Mexico.

3.8. WATER QUALITY

Extensive water quality data have been collected within the project area since 1965 by PCS, its consultants, and the Suwannee River Water Management District (SRWMD). Data from the project area have been collected since the startup of the mining operations in 1965. The historical data have been presented and analyzed extensively in two previous EISs. The EPA prepared an EIS on the construction of the Swift Creek Chemical Complex (EPA 1978). Several years later, the ACOE prepared an EIS on wetland mining impacts that included an extensive review of water quality as it related to mining (ACOE, 1986). The EPA also participated in a special study related to mining discharges on receiving streams (ESP, 1988). The Florida Department of Environmental Regulation (FDER) has also collected extensive data on the Suwannee River in the vicinity of the PCS project area to support the Outstanding Florida Waters (OFW) designation. The FDER conducted a two-year study (1982-1983) of the Suwannee to document the background water quality and biology in the river. Results of this study were presented in "Limnology of the Suwannee River, Florida" (FDER, 1985). The SRWMD has been collecting water quality and ecological data on the Suwannee and its

tributaries, including several that flow from the project area, since 1989 as part of their Surface Water Improvement and Management (SWIM) monitoring.

Water quality for the upper Suwannee River is reported as generally good (FDEP, 1996). Trends indicate stable water quality, with improving trends noted for Swift and Hunter Creeks and the Suwannee River below White Springs.

The Suwannee River, in the vicinity of the project area, was designated as an Outstanding Florida Water (OFW) in 1979. OFWs are waters that are identified as having exceptional ecological or recreational significance and they are afforded special protection from new pollution sources. The regulatory objective of the OFW program is to protect water quality, as it existed for the year prior to OFW designation. New direct discharges that would degrade water quality cannot be allowed to OFWs, and new indirect discharges cannot cause significant degradation to OFWs. This application does not involve any new direct or indirect discharges, so no evaluation is necessary.

The Suwannee River Water Management District (SRWMD) also designated the entire Suwannee River in Florida as a Surface Water Improvement and Management (SWIM) water body in 1991. The focus of the SWIM planning effort by the District is the protection of the water resources in the basin. In addition to other efforts, the District has a well-developed land acquisition and management program focused on environmentally sensitive lands within the basin, especially within the floodplain of the River.

Water discharged from the mining operations are regulated through both the National Pollutant Discharge Elimination System (NPDES) (Figure 8) and Industrial Wastewater (IW) programs. Effluent limits have been established for the discharges and permit limits have been established to protect both U.S. and State of Florida waters downstream of the active mine operation. The quality of the mine discharges will not change regardless of the ACOE's action on the proposed activities.

3.9. HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

There are no hazardous, toxic or radioactive wastes produced by or during the mining process. However, radium levels from reclaimed lands have been an issue in Florida. The total radiological impact of mining and reclamation is a complex question and involves many pathways and potential uses of the land after reclamation. Some specific impacts can be addressed by comparative studies. A few guidelines have been developed to lessen the impact of a particular pathway. Water is one pathway, either by surface or groundwater, to humans and acceptable levels of radium in drinking waters have been set by the EPA. Discharge permits often address allowable concentrations of radium. Reclaimed lands may be used for growing crops, forage, or grazing animals for food. A number of studies and some current projects funded by the Florida Institute of Phosphate Research (FIPR) address this pathway. Although some crops may be elevated in radioactivity, the total impact has been found to be within acceptable limits. Direct exposure of persons living or working on reclaimed lands is another pathway of exposure. However, any reasonable time-distance scenario indicates small impacts at levels observed on reclaimed lands. Indoor radon levels in homes constructed over reclaimed lands is considered an important impact. This impact can be controlled by limiting the near-surface radium concentrations or by radon-resistant construction techniques in current guidelines by the Department of Community Affairs.

The range and average gamma level of the pre-mined lands at PCS are expected and reflect average USA values. There is no significant risk (exposure scenario to humans) of the gamma levels indicated at the PCS sites.

Near-surface Radium-226 concentrations are most important in reclaimed land. The levels are directly proportional to the risk of indoor radon in homes and buildings constructed on these reclaimed lands. There will also be an increased potential for elevated levels in food crops, but the total risk will be shown to be acceptable. Table 3.1.7.4.4.-1 (STBD, 2000) for the FDH 1996-1997 survey summarizes the near-surface Ra-226. Reclaimed lands, in general, will not be suitable for slab-on-grade buildings without full radon resistant construction techniques as recommended by the Department of Community Affairs. Some homes and buildings may even require the more extensive protection of a sub-slab depressurization system.

There is much debate in the current literature on the actual risk of the EPA guideline for indoor radon, but the State data for reclaimed lands would indicate a positive risk to individuals who may build homes, offices, businesses, etc. on reclaimed phosphate lands. All potential developers should receive a warning about 6-foot concentration of Ra-226 in reclaimed lands sold for development. Full radon resistant construction techniques as published by the Florida Department of Community Affairs should be used in any case where the data indicate concentrations near or exceeding 2 pCi/g.

Construction of various types of structures (homes, office buildings, etc.) on reclaimed lands in Central Florida is common. There is little, if any, risk to humans involved when all of the building regulations and guidelines are followed. This is evident in Central Florida where at least 12,000 homes, several subdivisions, business offices, a medical complex, shopping centers, and state, city and county parks have been established on reclaimed lands (G. Nifong, FIPR, pers. comm.).

One use of reclaimed phosphate mined lands is for agriculture. Tree farming and nursery use is of no concern, as the crops are not consumed.

The FIPR report entitled "Radioactivity in Foods Grown on Mined Phosphate Lands" (FIPR 1990) concluded that radionuclide concentrations in foods grown on the various mined phosphate lands were statistically higher than in foods grown on control lands. Those results were entered into a diet, intake, and dosimetry model. The results of those calculations clearly show that the radiation dose to consumers of crops grown on the mined lands to be only 2.7 mrem per year higher than the calculated dose for a similar individual who obtains all of his or her foods from lands unaffected by phosphate mining. In order to put this 2.7 mrem per year into perspective, note that an average USA citizen receives about 40 mrem per year from medical diagnostic X-rays and almost 200 mrem per year from average indoor Radon. The impact from agriculture on reclaimed land indicates a measurable impact but a low total risk.

The FIPR has funded studies to determine the risk of growing crops, forage, cattle and dairy cattle on various reclaimed land types. This report has briefly reviewed some aspects of this landuse. In the FIPR studies it was clear that certain crops might have a higher radioactive content when compared with controlled areas. However, the detailed diet study scenario clearly demonstrated a small risk to individuals, even for those who may choose to have a backyard garden and a dairy cow at a homestead on reclaimed lands. It was also very clear in the brief review that North Florida has a somewhat smaller impact than for Central Florida due to the lower radiation content of the strata mined.

The previous (OCC, 1985) impact statement examined the potential impact of the potential uptake of Ra-226 by waterfowl on settling areas and any consumption hazard. The conclusion was that a scenario with a very high consumption of duck meat would result in an insignificant dose. There was the suggestion that there should be "no action to limit public consumption of waterfowl from any Florida phosphate clay settling area."

The previous (OCC, 1985) impact statement also included a general survey of fish species and some turtles for their uptake of Ra-226. The results were very low ranging from non-detectable to 0.5 pCi/g flesh. Thus there is very little uptake in fish and no significant risk in the consumption of fish taken from the waterways near areas impacted by mining.

The rivers and groundwaters near PCS have low concentrations and do not approach the drinking water guidelines for radium. There are no high values in North Florida as there are in Central Florida. There is no risk scenario that would be of consequence to the health of individuals.

3.10. AIR QUALITY

The potential air pollutant emissions from phosphate rock mining are limited to fugitive particulate matter contributed by clearing, mining, transport of material, and reclamation activities. The air quality monitoring data collected in the vicinity of HCM and both chemical complexes show that total suspended particulate matter levels are below standards established by EPA and adopted by FDEP (TBD Section 3.5). Quantities of carbon monoxide, nitrogen oxides, volatile organic compounds, and sulfur dioxide, resulting from the exhaust of mobile equipment, are negligible. There have been no significant changes in the mining methods since the TBD. Therefore there is no reason to believe the air quality situation or impacts have changed. Please see Section 3.5 of the TBD for a description of potential air quality impacts.

3.11. NOISE

In the absence of stationary operational plants and mobile, off-road earth-moving equipment, the baseline day/night average noise level was established to be 40dB (DEIS, 1985). Noise levels for major mobile equipment, including the large draglines, which may also be considered as point sources, are 76-85 dBA at 100 ft distance. These impacts are of short duration and localized. Based on noise source data and the noise attenuation rate, the range of existing noise levels more than one mile from principal noise sources is 40-55 dB, just slightly greater than baseline levels (TBD, Section 3.6). There have been no significant changes in the mining methods since the TBD. Therefore there is no reason to believe the noise situation or impacts have changed. Please see Section 3.6 of the TBD for a description of potential noise impacts.

3.12. AESTHETIC RESOURCES

Aesthetics are in the "eye of the beholder." What is pleasing to one is not necessarily pleasing to another. The reclaimed landscape after mining will be more heterogeneous and contain less silvicultural stands. Lakes will be more prominent in the area. The lakes will have associated uplands that will provide vistas over the lakes and to many will be more aesthetically pleasing than the premining landscapes. Bird watching has become very prevalent in the area since the beginning of mining because of the attraction of the open water areas that were not prevalent prior to mining.

3.13. RECREATION RESOURCES

Hamilton County is bounded on three sides by rivers, which are the foundation for resource-based recreational opportunities in the county (STBD, Section 3.2.2.). The Suwannee River runs eighty miles on the east and south, and the Withlacoochee River is the twenty-five mile western boundary. The public lands of the Suwannee River are primitive natural unimproved areas open to the public for recreation activities such as fishing, hunting, hiking, biking, horseback riding, nature study and canoe camping. The recreational and natural resource activities of the Suwannee River were analyzed using the ACOE Recreation and Natural Resource Assessment Criteria (ACOE, 1978) (TBD, Section 3.10). General recreation of the Suwannee River was evaluated to be moderate, primarily due to access, unstable water levels, and shoals.

3.14. NAVIGATION

There are no natural navigable waters within the project area. The reclaimed lakes are “boatable”, but are not interconnected to provide inter lake navigation.

3.15. HISTORIC PROPERTIES

Archeological issues related to the project area were addressed for the entire project area during the previous EIS (Section 3.49) and in the 1985 TBD (Section 3.8). The ACOE requested that the State Historic Preservation Officer (SHPO) review and comment on archeological resources and any necessary actions that should be taken to prevent any loss of sites eligible for protection. The SHPO sent USGS 7.5 minute quadrangles identifying areas that need to be addressed within the project area. The company chose to survey all areas identified by the SHPO that were in the actual areas to be permitted by the ACOE. The remaining areas would be surveyed prior to mining in any new areas permitted by the ACOE that contained any of the identified areas. The ACOE permit contained a condition requiring this action. In the final comments on the DEIS (1985), in a letter from the SHPO to ACOE, the SHPO stated that they concurred with the DEIS (1985) conclusion that the project will have no impact on archaeological or historical resources in the proposed project area. The permit for the new application will likely contain a similar condition for any areas not covered in the original survey efforts.

4. ENVIRONMENTAL EFFECTS

This section is the scientific and analytic basis for the comparisons of the alternatives. See Table 1 in section 2.0 Alternatives, for summary of impacts. The following includes anticipated changes to the existing environment including direct, indirect, and cumulative effects.

4.1. GENERAL ENVIRONMENTAL EFFECTS

The alternatives as evaluated in the STBD and DSEIS evaluate direct, indirect, and cumulative impacts. The impacts are evaluated in the context of the existing permitted activities over approximately 46,000 acres within the 100,580 acre project area. The application covers 1,858 acres of current ACOE jurisdiction within the 19,077-acre application footprint. The application footprint also includes approximately 4,450 acres of other wetlands that will be mined and reclaimed in accordance with BOMR and Hamilton County regulations. The ACOE wetlands will be mitigated for by 2,061 acres of created wetlands.

Wetland reclamation has become an accepted practice to mitigate for wetland mining impacts. The only issues relate to the wetland design and establishment practices. PCS has successfully reclaimed approximately 2,600 acres of wetlands at the Hamilton County Mine. Given PCS's successful wetland reclamation and the ability to provide high paying jobs, tax payments, other economic benefits and the lack of any significant adverse environmental impacts it seems prudent and socially and environmentally correct to issue a mining permit to allow PCS to continue their mining operations in a practicable and economic manner. The avoidance and minimization was accomplished through the 1987 MOU, which formed the basis for the first ACOE mining permit. Please refer to section 2.7 for details of the MOU.

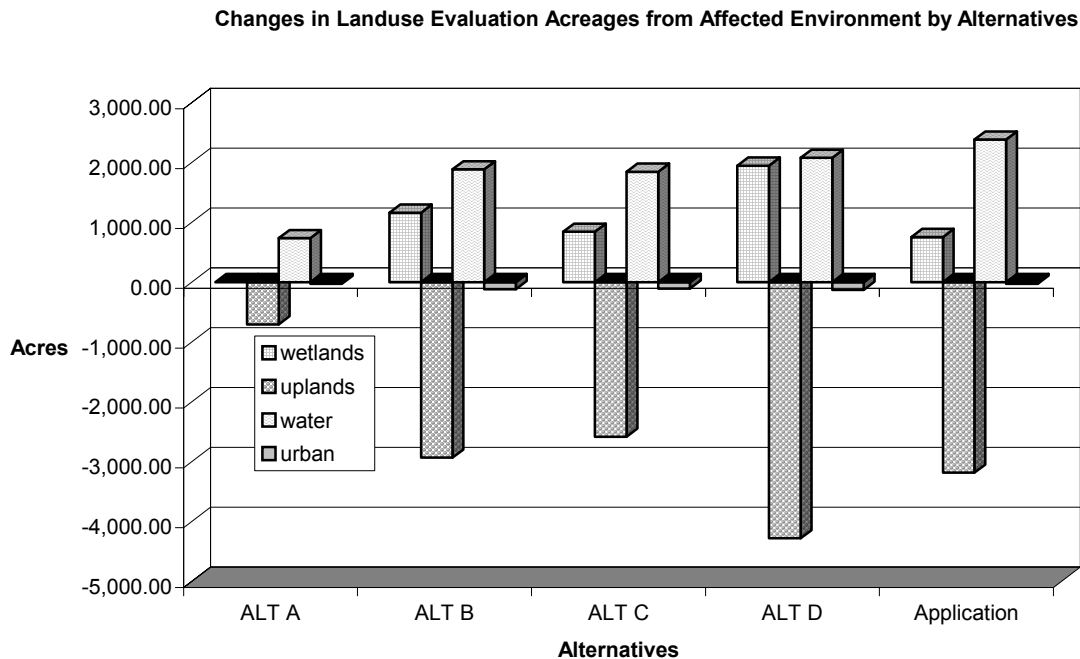
Impacts due to each of the alternatives are actually very similar in nature, except for the no action alternative, Alternative A: No wetlands mining or mine support within the unpermitted or undisturbed areas. There are no unique or special wetlands being proposed for mining. The ACOE and DER hydrologically connected wetlands are of more concerns simply due to their proximity to small streams. It was agreed at the conclusion of the initial EIS and permitting process, that all perceived higher quality wetlands (over 19,000 acres) would be preserved from mining.

All of the alternatives were evaluated in comparison to the "affected environment" as defined in 40 CFR 1502.15. It is the conditions that would exist in the area in the absence of the proposed project. This includes the reclamation that would be completed for areas that have been or will be mined under the no action alternative, Alternative A. Each alternative and the activities included in the application include proposed mitigation to offset the impacts of the mining activities. As the mitigation compensates for the impacts of each alternative, comparisons among the alternatives is difficult. Mining is a temporary impact due to the reclamation and mitigation that goes hand in hand with the mining. It should be noted that the mining and reclamation activities occur over extended time periods. The timing between mining and reclamation is roughly the same regardless of the alternative. Only the mine life and acres impacted differ. Both federal and state laws require mitigation and reclamation of the land that is mined. Given the above, the main differences among the alternatives are the socioeconomic impacts.

All of these wetlands were carefully evaluated and their mitigation carefully designed to prevent any failures or offsite impacts. The details are provided in the joint ACOE and FDEP application. Overall impacts among the alternatives are best differentiated based on total acres impacted as all the wetlands are reclaimed on an acre for acre and type for type basis.

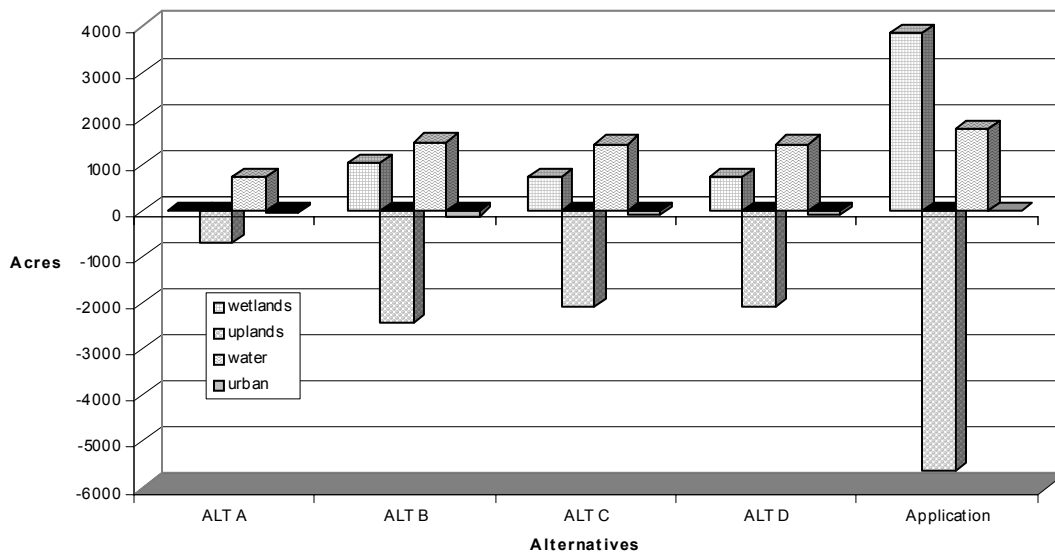
4.2. VEGETATION

The ecological or vegetation communities that would exist within the project area are, to a large extent, determined by how the mined land is reclaimed. Table 7 shows the various ecological communities mined or disturbed by mine support within the application footprint/preferred alternative. From an ecological standpoint, the differences in the types of landuses after reclamation will have the greatest influence and thus provide the best way to compare the alternatives as PCS has demonstrated that it can successfully reclaim each type. The species to be planted will be based on what has been found in the existing wetlands onsite. Quantitative data collected during the previous EIS effort and presented in Tables 4.2-2 through 4.2-13 (TBD, 1985) were used to generate a composite reference wetland. The data were summarized and are presented in Table 2. Data in Table 2 were evaluated using "professional judgment" and experience with planting success and tree availability to assign a percentage of tree groups to wetlands classified as FLUCCS codes 615, 630, and 620 (Table 3). Tables 5 and 6 provide a breakdown of post-reclamation vegetative communities by FLUCCS codes showing the acres that would be established for each alternative for the evaluation area and project area respectively. The tables contain a summary near the end that collapses the FLUCCS codes into simpler categories. The following bar graphs show the change in landforms by alternative. The differences in categories from the affected environment are shown graphically in the figure below.



The same breakdowns as for the evaluation area are provided on a project area basis in Table 6. The figure below shows the changes in landuse categories over the project area for each alternative using the affected environment as the starting point as was done for the evaluation area.

Changes in Landuse Project Acreages from Affected Environment by Alternatives



Two post-reclamation landform scenarios that essentially bracket potential changes in acres are discussed below.

One assumes that no additional permits are issued which would be the affected environment scenario. This would also represent the starting point for comparing changes resulting from issuance of permits based on this application. This is the "No Action" alternative (Alternative A) evaluated in the STBD (2000). The changes in landform acreages are tabulated below.

Landforms	Pre-mining	Affected Environment	Post- reclamation Permits Issued
Uplands	67,628	66,717	61,081
Wetlands	32,914	28,336	32,201
Open water	38	5,527	7,298

The decrease in wetlands from the "pre-mining" to the "affected environment" (post-reclamation, no new permits) is due to the post-modification (alternate) standards reclamation mitigation program (adopted in the 1995 MOA) that is currently in place. This program mitigates for wetland impacts through the purchase of environmentally sensitive acres off-site. Lakes are created on-site in place of these wetlands.

The increase in wetland acres between the "affected environment" and the "post-reclamation permits issued" is due to several factors. The most important are listed below.

- The change from post-modification (alternative/off-site) standards back to pre-modification (conventional) standards results in over 2,700 acres of wetlands being put back on-site instead of being mitigated for through the purchase of environmentally sensitive lands.
- Additional wetlands will be created (though not required for mitigation) on clay settling areas subject to "post-modification" (alternate standards).

- PCS typically creates approximately 5-10% extra wetlands to insure the acre for acre requirements are met. Within this application footprint, approximately 800 more acres will be reclaimed than will be mined.

4.3. THREATENED AND ENDANGERED SPECIES

There will be no adverse impact on any federally listed species. Please see section 3.3 for a discussion of the section 7 issues and resolution. The official coordination will occur during the review period for this DSEIS.

4.4. HARDGROUNDS

This section is not applicable to the PCS project area.

4.5. FISH AND WILDLIFE RESOURCES

Prior to the mining and reclamation operations fishing opportunities within Hamilton County were very limited due to the scarcity of lakes. Local residents were limited to the lower reaches of small streams on the Suwannee River, which is often too low to provide adequate fishing opportunities. Many residents opted to travel out of the area to fish. The creation of reclaimed lakes provides great fishing opportunities and actually draws fishermen from outside the area. The FWCC operates two fish management areas in reclaimed lakes: Eagle Lake and Lang Lake.

These reclaimed lakes provide excellent fishing and hunting opportunities that didn't exist previously. Reclaimed phosphate lakes are renowned for their fishing opportunities. A survey conducted by Auburn University Fisheries and Allied Aquaculture staff indicated that during June and July 1981, approximately 4,100 hours of fishing pressure resulted in removal of 1,500 pounds of fish from PCS reclaimed lakes (Boyd and Davies, 1981). Additionally, in 1982 the FWCC removed approximately 6,000 fingerling bass from Eagle Lake to stock lakes managed by FWCC in Duval County.

Reclamation will provide a net increase in aquatic habitats under all proposed mining alternatives that will benefit migratory waterfowl. Creation of these aquatic systems has resulted in a net increase in the number of bird species (30% of the expected total) occurring in the project area (Section 6.2.5, TBD, 1985).

Wildlife in the evaluation area is doing well. Only 500 – 1,000 acres are mined each year depending on the demand for PCS products. Reclamation rates are currently exceeding mining rates, so more land is being returned to other economic and wildlife uses than is temporarily taken out of service. The communities have adapted to existing in the mine and reclaimed areas, as the operations have been ongoing for over thirty-five years. This is evidenced by the high hunter success in the PCS Wildlife Management Area operated by the FWCC which is in an active mine area within the PCS project area. After reclamation, the fauna from the adjacent unmined and interim mined areas will move into and repopulate the reclaimed areas. Approximately 70 additional avifauna species (30% of the expected total) occur on the project site as a result of the various types of aquatic and wetland habitats created during mining and reclamation (EPA, 1978). A significant portion of the 100,580 project area will not be disturbed by mining activities, thus serving as biological reserves for species invasion and migration into adjacent areas of interim habitat types as well as reclaimed areas.

4.6. ESSENTIAL FISH HABITAT

There is no essential fish habitat within the project area as defined by the Magnuson-Stevens Act. This act addresses marine and anadromous species. The proposed project is over 150 miles from the Gulf of Mexico.

4.7. HISTORIC PROPERTIES

Archeological issues related to the project area were addressed for the entire project area during the previous EIS (Section 3.49) and in the 1985 TBD (Section 3.8). The ACOE requested that the State Historic Preservation Officer (SHPO) review and comment on archeological resources and any necessary actions that should be taken to prevent any loss of sites eligible for protection. The SHPO sent USGS 7.5 minute quadrangles identifying areas that need to be addressed within the project area. The company chose to survey all areas identified by the SHPO that were in the actual areas to be permitted by the ACOE. The remaining areas would be surveyed prior to mining in any new areas permitted by the ACOE that contained any of the identified areas. The ACOE permit contained a condition requiring this action. In the final comments on the DEIS (1985), in a letter from the SHPO to ACOE, the SHPO stated that they concurred with the DEIS (1985) conclusion that the project will have no impact on archaeological or historical resources in the proposed project area. The permit for the new application will likely contain a similar condition for any areas not covered in the original survey efforts.

4.8. SOCIO-ECONOMIC

To estimate the impact of the PCS-White Springs operations in north Florida, input-output multipliers (Burford and Katz, 1977, 1981, 1985, and 1987) were computed based on PCS's payroll and expenditures within Florida and the three-county area (Table 3.2.1. -8 STBD (2000)). This technique allows estimation of the income to people in Florida which results from the company's payroll, from its purchases of electricity and gas, payments for supplies and equipment, maintenance and operating expenses, and taxes. It is also possible to estimate the number of Floridians who are or will be employed as a result of these expenditures. The use of this methodology makes it possible to determine three levels of impact of such expenditures; direct impact, indirect impact, and induced impact. In this report, however, the indirect and induced impacts are combined.

The four alternative scenarios considered are a continuation of PCS White Springs' operations at approximately the 1998 level for 3 years (Alternative A), 20 years (Alternative B), 16 years (Alternative C), and 22 years (Alternative D) beyond mine-out of the existing permitted areas. All impact measurements are based on a breakdown of actual employment (by place of residence) and expenditures by PCS within Hamilton County, the 3-county area, and the State of Florida during 1998. They do not include PCS's own sales that year.

PCS's annual payroll, with 1,189 employees in 1998, was \$52,195,000. While direct employment and payroll are significant, the importance to the economy of the State of Florida and the immediate three-county area of primary impact is much greater than the employment and payroll data imply. In 1998, PCS Phosphate spent a total of \$167,356,000 within the State of Florida. Of this total, \$52,195,000 was in the form of payrolls and \$16,030,000 was in taxes, either at the state or local government level. The remaining \$99,131,000 was spent on fringe benefits for employees, electricity, communications, materials and supplies, services, equipment, and a variety of other things (Table 3.2.1. -2 STBD (2000)). These amounts do not reflect the total operating expenses of PCS, but only the part that was spent within Florida.

The total annual impacts resulting from these expenditures on the State of Florida and on the three-county area of primary impact are shown in Tables 3.2.1. -8 and 3.2.1. -9 (STBD, 2000). These

impacts are broken down into employment impacts, impacts on incomes, impacts on taxes, and impacts on the sales of other businesses in the state and in the three counties.

Total Future Economic Impacts Under the Four STBD Alternatives

The estimated total future impacts of the PCS White-Springs operation, under the four scenarios, for the State of Florida, the three-county area, and Hamilton County are summarized in the following table (Table 4.8. -1). The impacts shown in Table 4.8. -1. are cumulative impacts over the time period specified for each alternative under the assumption that future operations will continue at approximately the same level as in 1998. The detailed computations of the data in the following table are shown in Tables 6.2.2.8.-1, 6.2.2.8.-2, 6.2.3.8.-1, 6.2.3.8.-2, 6.2.5.8.-1, 6.2.5.8.-2, 6.2.D.8.-1, and 6.2.D.8.-2, (STBD, 2000) and detailed discussions of these impacts can also be found in the corresponding sections of the STBD (2000).

Table 4.8. – 1. Summary of Cumulative Economic Impacts of PCS White Springs Operations Under Selected Alternatives

	Alternative A	Alternative B	Alternative C	Alternative D
Statewide				
Employment (Person-Years of Employment)	17,150	114,333	91,466	125,766
Incomes of Individuals (Thousands of \$)	\$473,821	\$3,158,809	\$2,527,047	\$3,474,690
Taxes (Thousands of \$)	\$142,529	\$950,193	\$760,154	\$1,045,212
Other Businesses (Thousands of \$)	\$1,010,608	\$6,737,386	\$5,389,909	\$7,411,125
Total Impacts (Thousands of \$)	\$1,626,958	\$10,846,388	\$8,677,110	\$11,931,027
Three Counties				
Employment (Person-Years of Employment)	8,284	55,224	44,179	60,747
Incomes of Individuals (Thousands of \$)	\$238,359	\$1,589,062	\$1,271,250	\$1,747,968
Taxes (Thousands of \$)	\$41,781	\$278,540	\$222,832	\$306,349
Other Businesses (Thousands of \$)	\$291,961	\$1,946,407	\$1,557,126	\$2,141,048
Total Impacts (Thousands of \$)	\$572,102	\$3,814,010	\$3,051,208	\$4,195,411
Hamilton County Impacts				
Employment (Person-Years of Employment)	3,046	20,306	16,246	22,334
Incomes of Individuals (Thousands of \$)	\$89,662	\$597,749	\$478,199	\$657,524
Taxes (Thousands of \$)	\$25,226	\$168,174	\$134,540	\$184,992
Other Businesses (Thousands of \$)	\$100,116	\$667,438	\$533,950	\$734,181
Total Impacts (Thousands of \$)	\$215,004	\$1,433,361	\$1,146,689	\$1,576,698

Present Values of Total Future Economic Impacts Under the Four STBD Alternatives

The present values of the estimated total future impacts of the PCS White-Springs operation, under the four scenarios, for the State of Florida, the three-county area, and Hamilton County are summarized in Table 4.8. -2. The impacts shown in this table are present values of the cumulative impacts over the time period specified for each alternative under the assumption that future operations will continue at approximately the same level as in 1998. The present values shown were computed by using an inflation rate of 3.0% to increase the monetary values each year to

account for anticipated inflation and then discounted to present value as of the time the presently permitted areas are mined out. The discount rate used is 5.9%. Thus the net discount rate used is 2.9%. Note that the employment impacts are discounted at 5.9% but the inflation rate is not applied. The detailed computations of the data in the following table are shown in Tables 6.2.2.8.-3, 6.2.2.8.-4, 6.2.3.8.-3, 6.2.3.8.-4, 6.2.5.8.-3, 6.2.5.8.-4, 6.2.D.8.-3, and 6.2.D.8.-4 (STBD, 2000) and detailed discussions of these impacts can also be found in the corresponding sections of the STBD (2000).

The estimated years of mine life were based upon continuous operations at a consistent production rate until all the reserves are mined. Experience has demonstrated that production levels and mining rates vary widely over time. The estimated years of mine life are valid for comparison of alternatives, but should not be viewed as a limitation on the duration of permitted operations. All alternatives evaluated are incremental to the currently permitted operations

4.8. – 2. Summary of Present Values of Economic Impacts of PCS White Springs Operations Under Selected Alternatives

	Alternative A	Alternative B	Alternative C	Alternative D
Statewide				
Employment (Person-Years of Employment)	16,027	81,977	69,582	87,604
Incomes of Individuals (Thousands of \$)	\$447,612	\$2,371,628	\$1,999,158	\$2,542,486
Taxes (Thousands of \$)	\$134,645	\$713,403	\$601,361	\$764,799
Other Businesses (Thousands of \$)	\$954,707	\$5,058,417	\$4,263,981	\$5,422,839
Total Impacts (Thousands of \$)	\$1,536,965	\$8,143,447	\$6,864,500	\$8,730,124
Three Counties				
Employment (Person-Years of Employment)	7,659	37,782	32,305	40,238
Incomes of Individuals (Thousands of \$)	\$225,175	\$1,193,065	\$1,005,691	\$1,279,017
Taxes (Thousands of \$)	\$39,470	\$209,128	\$176,284	\$224,194
Other Businesses (Thousands of \$)	\$275,812	\$1,461,359	\$1,231,849	\$1,566,639
Total Impacts (Thousands of \$)	\$540,456	\$2,863,551	\$2,413,824	\$3,069,850
Hamilton County Impacts				
Employment (Person-Years of Employment)	2,622	12,937	11,061	13,778
Incomes of Individuals (Thousands of \$)	\$84,703	\$448,789	\$378,306	\$481,121
Taxes (Thousands of \$)	\$23,831	\$126,265	\$106,435	\$135,362
Other Businesses (Thousands of \$)	\$94,578	\$501,111	\$442,410	\$537,212
Total Impacts (Thousands of \$)	\$203,111	\$1,076,165	\$907,151	\$1,153,695

Alternative D has the greatest economic impact of all the alternatives while alternative A has the least. The rankings of the alternatives, from greatest impact to the least, are as follows: D, B, C, A.

Future Impacts Under Permitting Scenario

This section discusses the impacts on Florida, the three counties, and Hamilton County under the mining scenario requested in the permit applications. If the PCS White Springs operations continue

at about the 1998 level, it is estimated that this scenario will entail some 28 additional years of mining not including the areas already permitted. When integrated together there will be approximately 37 years of mining. The estimated impacts on the State of Florida and the three-county area of primary impact are shown in the following Tables 4.8. – 3. and 4.8. – 4.

The estimated years of mine life were based upon continuous operations at a consistent production rate until all the reserves are mined. Experience has demonstrated that production levels and mining rates vary widely over time. The estimated years of mine life are valid for comparison of alternatives, but should not be viewed as a limitation on the duration of permitted operations. All alternatives evaluated are incremental to the currently permitted operations.

4.8. – 3. Cumulative Economic Impacts of PCS's Hamilton Count Mine on the State of Florida Under Permitting Scenario

PCS Expenditures in Florida	Amount	Multiplier		Impact				
		Total	Income	Taxes	Total	Income	Taxes	Other Bus.
Employment (Person-Years)	31,332	5.11	na	na	160,066	na	na	na
Wages (All \$ amounts in thousands)	\$1,461,460	3.30	1.53	0.20	\$4,816,132	\$2,238,169	\$288,968	\$2,288,995
Fringe Benefits	\$446,880	3.64	0.96	0.22	\$1,625,664	\$429,197	\$97,540	\$1,098,926
Taxes	\$448,840	3.95	0.99	1.24	\$1,774,835	\$446,056	\$555,330	\$773,449
Electricity	\$471,548	2.47	0.45	0.15	\$1,166,431	\$212,128	\$69,986	\$884,317
Communication	\$12,600	2.77	0.59	0.17	\$34,937	\$7,445	\$2,096	\$25,396
Materials, Supplies, & Chemicals	\$727,748	2.98	0.58	0.18	\$2,166,382	\$421,653	\$129,983	\$1,614,746
Services	\$489,636	3.48	0.45	0.15	\$1,705,616	\$220,265	\$72,670	\$1,412,680
Machinery & Equipment	\$329,252	3.27	0.86	0.20	\$1,075,316	\$283,538	\$64,519	\$727,259
Freight	\$43,876	3.32	0.80	0.20	\$145,488	\$35,064	\$8,729	\$101,695
Rentals	\$178,136	2.47	0.45	0.15	\$440,641	\$80,135	\$26,438	\$334,067
Reagents	\$40,012	2.98	0.58	0.18	\$119,109	\$23,183	\$7,147	\$88,780
Other Expense	\$35,980	3.18	0.71	0.19	\$114,393	\$25,499	\$6,864	\$82,030
Total	\$4,685,968	3.24	0.94	0.28	\$15,184,943	\$4,422,332	\$1,330,270	\$9,432,341

Time Increment

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Continued on next page

4.8. – 4. Cumulative Economic Impacts of PCS’s Hamilton County Mine on the Three-County Area Under Permitting Scenario

PCS Expenditures in 3-County Area	Multiplier				Impact		
	Amount	Total	Income	Taxes	Total	Income	Taxes Other Bus.
Employment (Person-Years)	29,848	2.59	na	na	77,314	na	na na
Wages (All \$ amounts in thousands)	\$1,375,808	2.31	1.26	0.09	\$3,182,124	\$1,736,386	\$127,285 \$1,318,452
Fringe Benefits	\$420,700	2.45	0.56	0.10	\$1,030,608	\$236,108	\$41,224 \$753,276
Taxes	\$176,372	2.60	0.73	1.10	\$459,292	\$128,808	\$194,744 \$135,740
Electricity	\$0	1.65	0.22	0.07	\$0	\$0	\$0 \$0
Communication	\$7,560	1.90	0.32	0.08	\$14,384	\$2,389	\$575 \$11,420
Materials, Supplies, & Chemicals	\$158,872	2.09	0.31	0.08	\$331,883	\$50,011	\$13,275 \$268,597
Services	\$105,672	2.34	0.54	0.09	\$247,017	\$56,677	\$9,881 \$180,460
Machinery & Equipment	\$28,924	2.01	0.37	0.08	\$58,073	\$10,600	\$2,323 \$45,150
Freight	\$0				\$0	\$0	\$0 \$0
Rentals	\$0				\$0	\$0	\$0 \$0
Reagents	\$0				\$0	\$0	\$0 \$0
Other Expense	\$7,280	2.23	0.51	0.09	\$16,233	\$3,708	\$649 \$11,876
Total	\$2,281,188	2.34	0.98	0.17	\$5,339,614	\$2,224,687	\$389,957 \$2,724,970

Time Increment

28

The methodology used to estimate the impacts shown in Tables 4.8. – 3. and 4.8. – 4. is the same as that used in the STBD (2000).

Cumulative Total Impacts

The cumulative total impacts of continued operation of the PCS White Springs operation for an additional 28 years are shown in Tables 4.8. – 3. and 4.8. – 4. As shown in Table 4.8. – 3., the cumulative total impact on the State of Florida under this scenario is over \$15.1 billion. Of this total, over \$4.4 billion represents personal incomes to Florida residents, over \$1.3 billion is taxes for the state and local governments in Florida, and over \$9.4 billion is sales for businesses located in Florida, after payrolls and taxes. Looked at another way, this 28 years of operation can be expected to generate over 160,000 person-years of employment in the state.

Similarly, Table 4.8. – 4. shows that the total economic impact of this projected 28 years of PCS’s operations amounts to over \$5.3 billion in the three-county area including Hamilton, Columbia, and Suwannee Counties. Of this total, over \$2.2 billion represents incomes to the residents of the counties, just under \$390 million is taxes for the state and local governments in the area, and over \$2.7 billion represents sales for the businesses located in the three counties. In terms of employment, these 28 years of operation will generate more than 77,000 person-years of employment in the three counties.

The cumulative total economic impact of continued operation of PCS in Hamilton County for an additional 28 years will be more than \$2.0 billion. Of this total, just under \$837 million will be incomes to individual Hamilton County residents, over \$235 million will be taxes for Hamilton County, and over \$934 million will be sales for Hamilton County businesses, after payrolls and

taxes. In terms of employment, these 28 years of operation will generate more than 26,000 person-years of employment in Hamilton County.

Present Values of Cumulative Total Impacts

The present values of the cumulative total impacts of continued operation of the PCS White Springs operation for an additional 28 years are shown in Tables 4.8. – 5. and 4.8. – 6. The present values presented here are computed using an inflation rate of 3.0% and a discount rate of 5.9%. Thus, the net discount rate used for all monetary values is 2.9%. As before, the employment impacts are discounted but the effects of inflation are not taken into account. As shown in Table 4.8. – 5., the present value of the cumulative total impact on the State of Florida under this scenario is over \$10.3 billion. Of this total, over \$3.0 billion represents personal incomes to Florida residents, over \$902 million is taxes for the state and local governments in Florida, and about \$6.4 billion is sales for businesses located in Florida, after payrolls and taxes. Looked at another way, this 28 years of operation can be expected to generate over 102,000 discounted person-years of employment in the state.

Similarly, Table 4.8. – 6. shows that the discounted total economic impact of this projected 28 years of PCS's operations amounts to over \$3.6 billion in the three-county area including Hamilton, Columbia, and Suwannee Counties. Of this total, over \$1.5 billion represents incomes to the residents of the counties, just under \$264 million is taxes for the state and local governments in the area, and over \$1.8 billion represents sales for the businesses located in the three counties. In terms of employment, these 28 years of operation will generate more than 46,000 discounted person-years of employment in the three counties.

The discounted cumulative total economic impact of continued operation of PCS in Hamilton County for an additional 28 years will be more than \$1.3 billion. Of this total, just under \$568 million will be incomes to individual Hamilton County residents, about \$160 million will be taxes for Hamilton County, and over \$934 million will be sales for Hamilton County businesses, after payrolls and taxes. In terms of employment, these 28 years of operation will generate more than 16,000 discounted person-years of employment in the Hamilton County.

Table 4.8. – 5. Present Values of Cumulative Economic Impacts of PCS’s Hamilton County Mine on the State of Florida Under Permitting Scenario

	Multiplier				Impact			
	Amount	Total	Income	Taxes	Total	Income	Taxes	Other Bus
<i>PCS Expenditures in Florida</i>								
<i>Employment (Person-Years)</i>	15,156	6.76	na	na	102,491	na	na	na
<i>Wages (All \$ amounts in thousands)</i>	\$991,476	3.30	1.53	0.20	\$3,267,334	\$1,518,407	\$196,040	\$1,552,888
<i>Fringe Benefits</i>	\$303,170	3.64	0.96	0.22	\$1,102,874	\$291,174	\$66,172	\$745,528
<i>Taxes</i>	\$304,500	3.95	0.99	1.24	\$1,204,074	\$302,611	\$376,744	\$524,719
<i>Electricity</i>	\$319,905	2.47	0.45	0.15	\$791,324	\$143,911	\$47,479	\$599,934
<i>Communication</i>	\$8,548	2.77	0.59	0.17	\$23,702	\$5,051	\$1,422	\$17,229
<i>Materials, Supplies, & Chemicals</i>	\$493,715	2.98	0.58	0.18	\$1,469,705	\$286,056	\$88,182	\$1,095,467
<i>Services</i>	\$332,176	3.48	0.45	0.15	\$1,157,115	\$149,431	\$49,301	\$958,383
<i>Machinery & Equipment</i>	\$223,369	3.27	0.86	0.20	\$729,510	\$192,356	\$43,771	\$493,383
<i>Freight</i>	\$29,766	3.32	0.80	0.20	\$98,701	\$23,788	\$5,922	\$68,991
<i>Rentals</i>	\$120,850	2.47	0.45	0.15	\$298,937	\$54,365	\$17,936	\$226,636
<i>Reagents</i>	\$27,145	2.98	0.58	0.18	\$80,805	\$15,727	\$4,848	\$60,229
<i>Other Expense</i>	\$24,409	3.18	0.71	0.19	\$77,606	\$17,299	\$4,656	\$55,651
<i>Total</i>	\$3,179,029	3.24	0.94	0.28	\$10,301,687	\$3,000,175	\$902,475	\$6,399,038

Time Increment 28 *Interest Rate* 5.90%

Table 4.8. – 6. Present Value of Cumulative Economic Impacts of PCS’s Hamilton County Mine on the Three-County Area Under Permitting Scenario.

	Multiplier				Impact			
	Amount	Total	Income	Taxes	Total	Income	Taxes	Other Bus.
<i>PCS Expenditures in 3-County Area</i>								
<i>Employment (Person-Years)</i>	14,439	3.23	na	na	46,640	na	na	na
<i>Wages (All \$ amounts in thousands)</i>	\$933,368	2.31	1.26	0.09	\$2,158,799	\$1,177,990	\$86,352	\$894,457
<i>Fringe Benefits</i>	\$285,409	2.45	0.56	0.10	\$699,180	\$160,179	\$27,967	\$511,033
	\$0							
<i>Taxes</i>	\$119,653	2.60	0.73	1.10	\$311,590	\$87,386	\$132,117	\$92,088
<i>Electricity</i>	\$0	1.65	0.22	0.07	\$0	\$0	\$0	\$0
<i>Communication</i>	\$5,129	1.90	0.32	0.08	\$9,758	\$1,621	\$390	\$7,747
<i>Materials, Supplies, & Chemicals</i>	\$107,781	2.09	0.31	0.08	\$225,154	\$33,928	\$9,006	\$182,220
<i>Services</i>	\$71,689	2.34	0.54	0.09	\$167,580	\$38,450	\$6,703	\$122,427
<i>Machinery & Equipment</i>	\$19,622	2.01	0.37	0.08	\$39,397	\$7,191	\$1,576	\$30,630
<i>Freight</i>	\$0				\$0	\$0	\$0	\$0
<i>Rentals</i>	\$0				\$0	\$0	\$0	\$0
<i>Reagents</i>	\$0				\$0	\$0	\$0	\$0
<i>Other Expense</i>	\$4,939	2.23	0.51	0.09	\$11,013	\$2,516	\$441	\$8,057
<i>Total</i>	\$1,547,591	2.34	0.98	0.17	\$3,622,472	\$1,509,260	\$264,552	\$1,848,660

Time Increment 28 *Inflation Rate* 3.00%
Interest Rate 5.90%

Other Impacts

The actual economic impacts will actually be much greater than just those considered. Additional economic factors which are very real, but which have not been considered here, are:

- Revenues to out-of-state firms derived from PCS expenditures out of state, as well as expenditures outside Florida of the direct and indirect impacts on Florida, and the feedback effects of those revenues through their expenditures in Florida.
- Capital improvements outlays within Florida by PCS, which are not included in operating expenditures.
- Loss of the potential retirement benefits in the future of those people who will not work in the future if permits are not granted.
- Federal taxes paid by PCS, and those resulting from the direct, indirect, and induced impacts, and the feedback effects of Federal expenditures in Florida.
- The economic effects on the area of out-migration, reduced property values, and financial stress in the area resulting from the loss of employment and incomes at the PCS operation.
- Increased cost of unemployment compensation, welfare payments, and social services if permits are not granted.

In 1998, the total employment impact in Florida was 5,717 jobs and the total employment impact in the three counties was 2,761 jobs. In 1997, the ratio of total population to employment was 2.63. Closure of the PCS White Springs operation would result in a loss of support for 7,261 people in the three-county area. This number is 7.2% of the total three-county population in 1997.

The loss of this many jobs, and financial support for this many people, would place a heavy burden on these people, on the social services of the state and local governments, and on the local retail and service businesses. It would most likely lead to significant migration out of the local area, increased housing vacancy rates, and reduced property values, resulting eventually in further reductions in local property taxes.

Eventually, the mines and processing plants in Hamilton County will close down. However, the longer this event is delayed, the less will be its effects on the economy of the area. With more time to plan, other alternatives may be found to mitigate the effects of the loss of this activity.

4.9. AESTHETICS

Aesthetics are in the "eye of the beholder." What is pleasing to one is not necessarily pleasing to another. The reclaimed landscape after mining will be more heterogeneous and contain less silvicultural stands. Lakes will be more prominent in the area. The lakes will have associated uplands that will provide vistas over the lakes and to many will be more aesthetically pleasing than the premining landscapes. Bird watching has become very prevalent in the area since the beginning of mining because of the attraction of the open water areas that were not prevalent prior to mining.

4.10. RECREATION

The active mine areas and reclaimed areas provide many new and enhanced recreational options. The reclaimed lakes provide public boating and fishing opportunities that were either not present or severely limited prior to the mining and reclamation activities. These areas draw waterfowl in the thousands. This has been clearly demonstrated over the past decade by the consistently high hunter success in the PCS project areas. The FWCC operates several wildlife management areas within the project area in previously mined and operational areas. A successful commercial hunting

and fishing operation also operates on ~14,500 acres of natural, previously mined and reclaimed areas. A private entity recently purchased ~3,000 acres of reclaimed wetlands, lakes and uplands for use as a retreat and recreational area.

4.11. COASTAL BARRIER RESOURCES

This project is over 150 miles from the coast and at over 100 feet NGVD. Therefore, this is not applicable.

4.12. WATER QUALITY AND QUANTITY

4.12.1. WATER QUALITY

Approximately 3,700 acres of wetlands within the PCS evaluation area are not proposed for mining, under any alternative. An additional ~9,000 acres are not being affected due to their location in areas not being considered for mining. Thus, there are over 12,000 acres of undisturbed wetland acres not proposed for disturbance, which will provide the same water quality functions and still influence area water quality. The increase in lakes could cause some change in water quality discharged from the evaluation area. Tables RWQ 43-50 in the RWQ Appendix (Appendix 3.1.4.2.-1) of the STBD (2000) provides some recent water quality data from PCS reclaimed lakes. The data indicate that pH could increase 1-2 units. This is not bad from a productivity or FDEP water quality standards standpoint. The circum-neutral pH of the reclaimed lakes is actually better from a fisheries or aquatic fauna standpoint. The acidic pH of wetlands actually creates a harsher environment for the aquatic organisms and reduces productivity. As the lakes age, their water quality will become more similar to the wetlands because they will be receiving runoff from pine dominated systems which tend to be more acidic due to the humic acids in the pine needles. The growing wetland forests in the lakes will also tie up nutrients in biomass as they age, thus lowering nutrients in the lakes.

After mining ceases and reclamation is completed, water quality in the Suwannee River, area tributaries, and unaffected and reclaimed wetlands should approximate pre-mining characteristics. The structure and function of rivers like the Suwannee River are maintained principally by organic and inorganic input of their headwaters and tributary streams, as well as internal processes. If significant changes occur in the input, the basic character of the river changes. The headwaters of the Suwannee River, which include the Okefenokee Swamp and other headwater wetlands in Georgia and many Florida tributaries, contribute dark, acidic, poorly-buffered waters. These conditions form the foundation for the biological components in the Upper Suwannee River.

Many organisms, particularly macroinvertebrates, depend on terrestrially produced organic material for food and shelter (Cummins and Klug 1979). Mining uplands should not significantly alter the amount of organic detritus entering streams close to mine areas because the majority of the organic input to aquatic systems is from riparian vegetation or trees and shrubs close to the streams. In mine areas, a vegetation border will be left along all unmined waterbodies, except where part of the wetland itself is to be mined. Transport of material to downstream areas from upper reaches is not significant (1985 TBD Section 6.2.3.1.). Additionally, no mining under any alternative will occur within the 100-year floodplain of the Suwannee River nor within floodplains of tributary streams for at least 0.5 miles upstream of the stream's confluence with the Suwannee River.

Contributions of organic material to the Suwannee River should not be altered significantly, as contributions of project area streams are relatively insignificant on a regional scale. Falling Creek, Robinson Creek, Little Creek, and Deep Creek (located on the east side of the river) have approximately the same discharge as streams draining the project area. Thus, it can be assumed

that their organic contributions are similar. Any short-term alteration would be insignificant in terms of the overall dynamics of the project area. Additionally, major floodplain areas of the Suwannee River and tributaries for at least 0.5 miles upstream of the tributaries' confluence with the Suwannee River (potentially a major source of organic material for aquatic systems) will not be disturbed.

Physical and chemical characteristics of a stream typically change from its headwaters to its mouth (Hynes 1970). For most streams, these changes are gradual and occur over many miles. However, as a result of various surface and subterranean springs, particularly in the White Springs area, pH, hardness, and buffering capacity increase radically in the Suwannee River over a short distance (Bass and Hitt, 1971).

Chemical characteristics of many rivers in the United States are stable, fluctuating within narrow ranges during normal periods of flow. However, for the upper/middle portions of the Suwannee River (beginning approximately at White Springs), the chemical characteristics fluctuate widely, depending on the relationship between input from tributaries, the Okefenokee Swamp, and surface and subterranean springs. Bass and Hitt (1971) and Cox (1970) explained the relationship between discharge and water chemistry in the Suwannee River. The wide-ranging chemical regime in this portion of the Suwannee River suggests that the biological community in the river is composed mainly of organisms that are tolerant of these extreme conditions. Any localized changes that may occur in the Suwannee River as a result of PCS mine water discharge represent only another dimension in an already extremely variable chemical environment. Hence, the organisms inhabiting the Suwannee River are adapted to widely fluctuating conditions and should not be significantly impacted by stream discharges containing water from reclaimed areas.

The Florida Department of Environmental Regulation (now FDEP) sampled macroinvertebrates throughout the Suwannee River, including stations both immediately above and below Hunter and Swift Creeks for approximately two years beginning in February 1982 (1985 TBD Tables 6.2.-7 through 6.2.-20). Values above and below Hunter Creek for all macroinvertebrate parameters were equivalent (1985 TBD Table 6.2.-18). Diversity below Hunter Creek was generally the same and always >75% of the values above Hunter Creek, indicating that the criteria for biological integrity, as defined in Florida water quality standards, were met (1985 TBD Table 6.2.-19). More taxa were present below the confluence and diversity values were comparatively high, indicating a well-balanced community and good water quality.

Additional evidence that the Suwannee River does not exhibit adverse effects below Swift Creek is provided by the Florida Game and Fresh Water Fish Commission (FGFWFC, now FWCC). From 1969 to 1982 FGFWFC sampled the fish community above and below the confluence of Swift Creek six times, utilizing a variety of techniques including electrofishing, seines, and nets (FGFWFC, 1982, 1983). FGFWFC stated that "no consistent differences between the two sample stations are apparent" and found "no obvious trend since 1969". The FGFWFC concluded that the station below Swift Creek was similar to the station above Swift Creek and that "both sample locations are similar and reflect streams not degraded by impacts of man" (FGFWFC, 1983). In a summary report, the FGFWFC reviewed data for six sampling periods from 1980 to 1983 and found that mean sport fish biomass below Swift Creek was nearly double the biomass found above Swift Creek (Krummich and Kautz, 1984).

4.12.2. WATER QUANTITY

The 17 drainage basins within the project area will be restored to approximately pre-mining sizes. Changes in the discharge volume and peak flow rates are relatively small and fall within the criteria agreed to by BOMR and PCS as documented in the 1995 MOA. The following table (based on

Tables 6.2.2.2.3.-1, 6.2.4.2.3.-1, 6.2.6.2.3.-1 (STBD, 2000) and the November 2001 CRP) provides a summary of the percent changes in basin size, discharge volume and peak discharge for the five alternatives. Figure 9 shows the pre-mining drainage basins.

Percent changes from pre-mining to post-reclamation.

ALTERNATIVE	ACRES			Discharge Volume			Peak Flow Rates		
	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.
A	-8.5	-0.5	6.0	-10.1	-1.5	2.8	-29.1	-9.7	4.6
B	-3.6	0.3	5.3	-6.6	-1.5	4.1	-40.0	-15.7	1.7
C	-3.6	0.3	5.3	-7.8	-1.1	3.8	-40.0	-14.6	2.8
D	-7.3	0.3	5.4	-9.1	-2.8	4.8	-38.3	-16.0	1.5
Application Footprint/Preferred	-3.4	0.6	5.8	-10.1	-0.8	4.9	-33.3	-10.9	2.0

The mitigation projects for the 1,858 acres of ACOE jurisdiction were designed to prevent erosion within the projects themselves and in downstream areas using the methods and procedures described below.

The design of the post reclamation landforms, as shown in the proposed dredge and fill areas, incorporates techniques to minimize erosion while meeting design storm capacities. The reporting drainage basin and the design storm were determined by BCI Engineers and Scientists, Inc. (BCI) initially in the 1995 submittal of the Conceptual Reclamation Plan and updated in 2001.

The basic assumptions for the designs were:

- 1) All dredge and fill mined areas are filled with sand tailings.
- 2) All tailings are capped or covered with approximately 2 ft. of sandy clay or clayey sand spoil.
- 3) The early vegetative establishment period will involve heavy understory vegetation resulting in an elevated Manning's "n" factor
- 4) The maximum velocity at peak flow for the design storm will not exceed the velocity that may cause erosion for an expected soil type.
- 5) If the maximum velocity in a channel is exceeded for an expected soil type, then erosion protection will be employed

The Chezy – Manning equation was utilized to for all open flow calculations. The Manning's "n" factor utilized for the calculations were based on a design channel with dense willows or trees on the banks and trees within the channel with branches submerged. Using these criteria, the appropriate Manning's "n" factor is 0.09. Along with the design slopes and channel geometry, a maximum velocity was calculated for each design section at the design storm.

Experience in the Hamilton County area has shown that spoil used during reclamation can vary from fine sand (colloidal) to stiff clay (colloidal). Due to the soil types, a maximum water velocity of 1.5 ft per second was utilized. At this velocity, no erosion or transportation of sedimentation is expected for a worst-case soil type.

Any velocity greater than this will require erosion protection. However, all calculations for the potential velocity at the design geometry are held at less than 2.5 ft. per second. A grassed, easily eroded soil at a slope less than 5 percent will not erode at this velocity.

As a result, potential erosion has been minimized. However, other erosion methods that may be utilized are silt fence and hay bales to isolate the project site from undisturbed areas, seeding and sodding for soil stabilization, and silt or sediment logs to minimize turbidity. Turf reinforcement matting and polycrylmide erosion control emulsions may be utilized in highly erodable soils with greater runoff potentials.

The during mining impacts on flow were not quantified in detail. However, Table 4 was generated to show the changes in drainage basins by year for the major basins.

Dewatering the mining areas adjacent to unmined wetlands at the perimeter of the mining area has the potential to significantly drawdown the surficial water table. These impacts are temporary, and are significant only when the active mining is in the mine cut immediately adjacent to the adjacent wetland. A system of mitigation and monitoring is proposed to reduce the effects of dewatering on sensitive adjacent systems.

PCS has monitored Surficial Aquifer drawdown in the past. Six piezometers (PZ-1 through PZ-6) are located near prior and current mine areas in the northwestern portion of the project area. These piezometers, along with others in the immediate area of active mining, are monitored quarterly and reported to the ACOE in the annual report of activity under Permit Number 198404652. In addition to the operational area piezometers, three groups of piezometers are monitored for reference in areas well removed from potential impact of mining activity.

The monitoring records for these piezometers indicate an observable decline in the water table as mining operations and associated dewatering approach, with recovery to previous levels after mining operations and dewatering cease in the area. The water table in piezometers not affected by immediately adjacent mining and dewatering activity is observed to vary within the range of fluctuation found in the reference areas.

The extent and duration of water table impacts due to mining operations and associated Surficial Aquifer dewatering is dependent upon site-specific and climatological conditions. These include, among other factors: the depth of mine pit dewatering; the length of time the pit is kept dewatered; the amount of rainfall received during the period of dewatering; and, the hydraulic characteristics of the specific area. Certain mining practices such as spoil placement and perimeter ditch placement can significantly affect the extent and duration of water table impacts. Under typical operating and hydrologic conditions and with normal rainfall, the water table can be expected to show a decline of one foot or less at a distance of 2,000 feet from the active mining area. The distance and magnitude of decline can vary, as can the time required for water table recovery to previous levels.

In a study completed for PCS in March 2000, Ardaman and Associates, Inc. (Ardaman, 2000) installed additional piezometers at a nearby site to assess Surficial Aquifer impacts resulting from mine dewatering. The report included computer modeling of the Surficial Aquifer to determine the potential impacts to wetlands adjacent to the temporarily dewatered active mine areas. In their conclusions, Ardaman stated that:

"The recently completed engineering study indicates that drawdown effects of mine pit dewatering on the surficial aquifer water table are heavily influenced by rainfall conditions. For typical mining depths, the calculated distance to a water table drawdown of six inches is less than 1,500 feet during periods of higher-than-normal rainfall, and less than 2,500 feet during periods of normal rainfall. During periods of extended drought (i.e., periods with no net recharge to the surficial aquifer), the calculated distance is just over 4,000 feet from the mine pit."

Potential mitigation measures include altering the mining sequence to allow spoil to be cast against the pit face nearest the adjacent wetland. Such spoil placement retards seepage from the sandy

matrix strata. Where applicable, berms should be built to prevent surface water from flowing from the wetlands toward the mining areas, thereby increasing ponded water in the wetlands. In addition, a shallow recharge ditch constructed in the surficial sands will help maintain water levels in the surficial aquifer. In some areas closely spaced recharge wells may be required to create a hydraulic barrier to further offset the effects of pit dewatering on adjacent areas.

An evaluation should be made prior to mining adjacent to unmined adjacent wetlands, and some or all of the mitigation measures should be used based on the site-specific conditions. Mitigation measures should be in-place prior to the initiation of mining pit dewatering activities, and should be curtailed once the adjacent dewatering activities have stopped. The effectiveness of the mitigation plan should be determined by installing shallow piezometers between the mining and the adjacent wetlands.

4.13. HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

The mining process does not generate any of these type wastes.

4.14. AIR QUALITY

The mine does not have any significant adverse effects on air quality. Please see section 3.10.

4.15. NOISE

Noise levels from mining operations are regulated by section 14.7.2, Part 7.A.3 or the Hamilton County Land Development Regulations and applicable regulations of the U.S. Mine Safety and Health Administration (MSHA). PCS has always been in compliance these regulations.

4.16. PUBLIC SAFETY

The mining authorized by ACOE permits will occur on lands that are restricted for public access. Any associated activities, such as transportation of goods and supplies on roads and railroads, will comply with applicable laws concerning public safety.

4.17. ENERGY REQUIREMENTS AND CONSERVATION

PCS works to conserve energy, as it is an expense that reduces profit. The proposed activities would not increase the rate of the energy expenditure. All the necessary infrastructure is in place to bring energy to the site. Should the permit be denied and the phosphate produced by the Hamilton County Mine have to be imported, the increase in energy expenditures would be significant.

This aspect was not quantified. However, the least energy per unit of phosphate recovered will occur under the application alternative. The no action and the more restrictive alternatives prevent the equipment from being utilized efficiently. Avoiding wetlands and mining in smaller disjunct blocks will increase energy consumption.

4.18. NATURAL OR DEPLETABLE RESOURCES

The phosphate ore that is mined, processed and shipped for use in fertilizers and animal feed supplements is a resource that is depleted by the proposed action. However, phosphate is necessary for life and must be extracted and processed for use by the world population. There are no other substitutes.

4.19. SCIENTIFIC RESOURCES

There are not unique or special scientific resources within the project area.

4.20. NATIVE AMERICANS

There are no known lands or facilities owned or controlled by Native Americans within the project boundary.

4.21. REUSE AND CONSERVATION POTENTIAL

PCS has reuse and conservation programs in place for their operation. The most significant reuse and conservation measures involve the recycling of water used in the mine water system to transport both the matrix and the separated clays and sand tailings to their ultimate deposition. The water flows through large settling areas to allow the solids to settle and then the water is reused repeatedly. This greatly reduces the need for extra groundwater withdrawals.

PCS also has recycling programs to handle used oil, hydraulic fluid, and radiator water from the mine equipment.

In addition, PCS also will accept treated wastewater from the White Springs municipal wastewater treatment plant as soon as the plant is operational. This water will enter the mine water system and be recycled and used to transport matrix, clays and sand tailings.

4.22. URBAN QUALITY

All of the lands within the DSEIS application footprint are either rural or agricultural in nature. There are no urban land uses with this boundary.

4.23. SOLID WASTE

Solid wastes generated by the mining operations are managed in accordance with state law. This includes both disposal of typical "household" type waste that are sent to the Hamilton County landfill and on-site management of construction and demolition type debris.

4.24. DRINKING WATER

Direct mining activities, digging overburden and mining the phosphate matrix, are confined to generally sandy strata that make up the surficial aquifer. More clayey sediments that comprise the confining units of the Intermediate Aquifer System are left virtually intact in the pit bottom. There are no effects to the drinking water sources of the Floridian Aquifer.

PCS maintains a system of production wells to support the production and processing of phosphate rock. The production wells (and several potable water wells) withdraw from the Floridian Aquifer, and are permitted by the Suwannee River Water Management District (SRWMD). All SRWMD water use permits are in compliance.

4.25. CUMULATIVE IMPACTS

All of the impacts discussed in the DSEIS and STBD (2000) were evaluated in the context of what has already been mined or disturbed and the ongoing mining and reclamation activities. The only other major impacts within project area are related to past and ongoing silvicultural activities. When the silviculture BMP's are followed, these impacts are temporary in nature and do not have any lasting significant impacts. When wetland areas are timbered and converted, losses in aquatic ecosystem functions and benefits can and do occur. There are no quantifications of these types of impacts and are outside of the scope of the DSEIS.

As noted in other sections, given the sequencing of mine preparation, mining and reclamation, the amount of land that is not providing ecological benefits is relatively constant. PCS is now

reclaiming land as fast or faster than it is mined on a net acre basis. Since 1991 PCS has reclaimed approximately 1,000 more acres than it has mined.

Nutrient loadings from the entire facility has decreased significantly over the past decade since the Suwannee River was determined to be an Outstanding Florida Water (OFW). The Suwannee River is not within the project site. However, it does receive indirect discharges from PCS operations. The Suwannee River does currently receive discharges from the White Springs Wastewater Plant. However, these will soon cease because PCS has agreed to accept the discharge into its mine water system. The nutrients that would have gone directly to the river will now be reduced through wetland uptake in the vegetated portions of the clay settling system that are either inactive due to a shut down of one mine area or due to a compaction/consolidation state which takes the areas out of active service for a period of time.

In addition to the environmental impacts, there are significant economic and human resource impacts. The cumulative total impact on the State of Florida is over \$15.1 billion. Of this total, over \$4.4 billion represents personal incomes to Florida residents, over \$1.3 billion is taxes for the state and local governments in Florida, and over \$9.4 billion is sales for businesses located in Florida, after payrolls and taxes. Looked at another way, this 28 years of operation can be expected to generate over 160,000 person-years of employment in the state.

The total economic impact of a projected 28 years of PCS's operations amounts to over \$5.3 billion in the three-county area including Hamilton, Columbia, and Suwannee Counties. Of this total, over \$2.2 billion represents incomes to the residents of the counties, just under \$390 million is taxes for the state and local governments in the area, and over \$2.7 billion represents sales for the businesses located in the three counties. In terms of employment, these 28 years of operation will generate more than 77,000 person-years of employment in the three counties.

The cumulative total economic impact of continued operation of PCS in Hamilton County for an additional 28 years will be more than \$2.0 billion. Of this total, just under \$837 million will be incomes to individual Hamilton County residents, over \$235 million will be taxes for Hamilton County, and over \$934 million will be sales for Hamilton County businesses, after payrolls and taxes. In terms of employment, these 28 years of operation will generate more than 26,000 person-years of employment in Hamilton County.

4.26. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

For the chosen alternative, various resources would be affected by mining. Many of those resources can be reclaimed or mitigated post-mining. However, in some cases for mining to occur, some resources will be lost. The most obvious is the phosphate ore that will be removed from the site. It is important to note that phosphate reserves are finite, non-renewable resources that are absolutely vital to the human food chain. There is no alternative, natural or synthetic, to substitute for phosphate. PCS contributes a significant percentage of the phosphate mined worldwide, and continued mining at PCS is therefore vitally important to millions of people.

Ore that is not mined would be considered irretrievably lost, as it would not be economically practicable to return and extract the ore in small, disjunct parcels. The affect on jobs in the region, statewide and to people worldwide that rely on this resource would be significant.

Additionally, the mining process, regardless of the alternative chosen, would result in a loss of uplands that are currently being used for silviculture. This loss occurs due to the void left during the mineral extraction that is subsequently reclaimed as lakes. These lakes provide some of the best

largemouth bass fishing in the world. They will also undoubtedly enhance the value of the surrounding uplands for development in the future. This has been proven many times in the central Florida phosphate mining region, which is much older and in more densely populated areas.

4.27. UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Upland Communities: Unavoidable impacts on upland communities include temporary reductions in flora and fauna populations due to clearing of vegetation and subsequent mining. However, clearing and mining are gradual processes, and reclamation will follow, with reestablishment of vegetative cover and invasion and colonization of flora and fauna from adjacent areas. Post-mining there will be a net loss of upland acreage and conversion to aquatic and wetland systems during reclamation as a result of the creation of lake systems. Unavoidable impacts are similar for all proposed mining and mitigation alternatives; however, the amount of upland community disturbed, mine life, and net loss of upland community vary for each alternative (Table 6.2.7.1-1, Addendum to STBD (2000)).

Wetland Communities: Unavoidable impacts on wetland communities are similar to those on uplands; in disturbed areas there will be temporary reductions in flora and fauna populations due to clearing of vegetation and subsequent mining. However, clearing and mining are gradual processes, and reclamation will reestablish wetlands on a greater than acre-for-acre basis. The majority of naturally-occurring wetland vegetation will not be disturbed even under Mining Alternative D, which maximizes reserve recovery (Table 6.2.D.1-1, Addendum to STBD (2000)).

For Alternatives B and D, functional values attributed to wetlands will be temporarily lost in those wetlands mined and potentially adversely impacted in those wetlands that are partially disturbed depending on the percentage of the wetlands affected. Functions will not be totally restored until the reclamation wetland systems mature. However, the interim habitats provided by the mined land prior to reclamation and the habitats provided by the maturing wetlands and uplands will significantly offset the lost functional value. Please see Section 7.2.1.2. of the Addendum to the STBD (2000) for more details of impacts to wetland communities.

Aquatic Communities: Mining of aquatic habitats will result in temporary reductions in associated flora and fauna. However, only a small percentage of this habitat will be disturbed under any mining alternative (Table 6.2.D.1-1, STBD (2000)). Addition of interim habitats during mining and creation of reclaimed lakes and other aquatic systems will result in a net increase in aquatic habitats under all mining alternatives. Please see Section 7.2.1.2.1. of the Addendum to STBD (2000) for more details of impacts to aquatic communities.

Forestry and Agricultural Resources: Unavoidable adverse environmental impacts are similar for all mining alternatives under consideration. The magnitude varies according to the amount of land proposed to be mined or disturbed by mine support facilities. Unavoidable impacts include a gradual but temporary decrease in acreage of productive forestry and agricultural land during incremental mining and reclamation. Reclamation will restore productive forestry and some agricultural operations on reclaimed lands. There may be a net loss of these lands due to the net loss of uplands due to the conversion to lake systems as a result of reclamation.

Game and Migratory Wildlife: Populations of migratory species dependent on wetland and terrestrial habitats will temporarily decline in areas of active mining. However, reclamation and mitigation activities are planned to restore terrestrial and wetland habitats equivalent to the acreage mined, and creation of new and more diverse habitats during reclamation should increase populations of many species. Mobile fauna would likely move to adjacent undisturbed areas or

areas that had already been mined. These individuals could return as the mining process moves to other areas.

Rare and Endangered Species: Some flora and fauna populations will decline as a result of mining, whereas others may actually increase; however, the regional status of these species should not be impacted. Approximately 57% of the evaluation area will be affected under the alternative that proposes mining the most area (Alternative D). Due to the sequential mining process and the areas not scheduled for mining or mine support being left in their natural state, populations in adjacent unmined areas will readily invade reclaimed areas. As noted above individual mobile fauna will move back and forth between active mine areas, undisturbed areas, reclaimed areas and interim areas that have been mined and are in the process of reclamation.

Surface Water Quality: During mining, adverse impacts on water quality could include possible turbidity problems, if water was not adequately clarified prior to discharge, and increases in dissolved solids content from increased Surficial Aquifer contribution to surface waters; however, these impacts are considered minor. Water will be routed to a settling basin, such as a reclaimed lakes, prior to discharge to allow sufficient time for settling of the suspended solids. Increases in dissolved solids will be relatively small, as a relatively low percentage of the flow will be derived from water table seepage. A shift in pH to a slightly higher level may result in waters routed to settling basins where phytoplankton communities develop; however, this change is considered insignificant.

Presently, PCS has permits to discharge to three streams, Swift and Hunter Creeks, and Camp Branch (Figure 8). PCS may obtain NPDES permit modifications to allow for future mining discharge to additional streams in the area that, if permitted, would result in chemical and physical alterations of the streams. This type of impact on a new stream will be subjected to a thorough evaluation through the NPDES permitting procedure at both the state and federal levels and thus, will not be addressed as part of this wetlands mining process.

Air Quality: The only unavoidable adverse impact is a temporary increase in total suspended particulate matter levels in the vicinity of the mining activities as a result of land clearing operations, wind erosion, reclamation activities, and vehicular traffic. The increase is temporary and levels should return to area wide background levels when reclamation is complete. This temporary increase will not threaten ambient air quality standards.

Radiation: The magnitude of the radiological impacts resulting from the mining and mitigation alternatives will be identical to those that have resulted from previous PCS mining. The increased levels of radioactivity are well within applicable guidelines and proposed standards, and are similar in magnitude to naturally occurring levels of radioactivity in other areas of the United States.

Historical and Archaeological Resources: PCS has committed to evaluate and clear the areas identified in the previous EIS that were not cleared previously prior to any mining of those areas.

Recreation: There are no unavoidable impacts to recreation after the reclamation and mitigation are complete. All mining alternatives increase recreational opportunities and diversity of wildlife habitat by the creation of lakes.

4.28. LOCAL SHORT-TERM USES AND MAINTENANCE/ENHANCEMENT OF LONG-TERM PRODUCTIVITY

A slight increase in productivity of silvicultural and agricultural landuses may be realized with reclaimed soils and landforms. The relationship between the short-term use and potential slight

increase in productivity of silvicultural and agricultural land is similar for all mining alternatives. Long-term productivity of the area will be affected by the creation of lake systems, which are presently limited in the geographical area. The lakes will provide habitat for fish and wildlife, including endangered species, and support recreational activities.

Ecology: Enhancement of long-term productivity by the short-term disturbance of upland communities will be realized by: creating lake systems and associated marsh areas at post-mining, increasing the overall landscape diversity, and maintaining or slightly increasing productive value for forestry and agricultural activities. Creation of lakes and associated wetland areas after mining will result in a net increase in productivity as compared to pre-mining conditions and will increase the habitat diversity and species diversity in the area. A variety of habitats are created within the reclaimed lakes: zone of fluctuation, littoral zone, transition zone, and deep-water zone. The reclaimed lakes will provide more habitat for fish, lentic macroinvertebrates, and species associated with lake margins and littoral zones such as reptiles, amphibians, wading birds, ducks, and macroinvertebrates. There will also be additional habitat available for populations of game and migratory species and any rare and endangered species that use aquatic habitats. While the productivity patterns of mined and mine support areas will be interrupted on a short-term basis, the reclamation process will insure that these patterns will be reestablished or enhanced on a long-term basis.

Surface Water Quality: Both primary and secondary productivity will be higher post-reclamation for all alternatives in the reclaimed lakes and streams to which they discharge. The greater productivity of the lakes has not caused any problems in either the receiving streams or the Suwannee River and is not expected to do so in the future. Overall the nutrient loading to area streams and the Suwannee River has been substantially reduced by PCS over the last several years. Reclaimed lakes will also enhance water quality by acting as detention/retention areas for filtering nutrients and allowing settling of suspended solids from adjacent surface runoff.

Air Quality: Total suspended particulate matter levels during active mining and reclamation activities are less than levels established by federal and state air quality standards. Neither the long-term nor short-term productivity of the area will be affected by air quality impacts.

Radiation: Increases in Ra-226 concentrations in the near-surface soil and terrestrial gamma radiation are long-term effects of mining. Increases in airborne particulate radioactivity and occupational hazards are associated with mining and reclamation activities and have been determined to be negligible impacts. The impacts of these latter exposures are further reduced after reclamation. There is no enhancement of long-term productivity with respect to radiation and radioactivity.

Historical and Archaeological Resources: No significant archaeological sites occur in the project area and no adverse impacts are predicted for any of the proposed alternatives.

Productivity Outside the Project Boundary: The on-site reclamation/mitigation alternatives will not affect off-site productivity except as noted below for fauna and water quality.

Recreation: It is hard to envision any relationship between productivity and recreation unless it could be related to increased fishing opportunities in the River immediately downstream of streams draining the project area. To the extent that the slightly increased nutrients caused some improvement in conditions immediately downstream as has been documented by FWCC biologists, this would be a positive impact on recreation.

Water Quality: It is unlikely that Alternative A will affect off-site productivity in any measurable way due to the relatively small acreage mined. Under Alternatives B, C, and D off-site productivity could be increased. All three alternatives have significant increases in reclaimed lakes (Sections 6.2.4.2. and 6.2.6.2., STBD (2000) and 6.2.D.2. of the Addendum to the STBD (2000)). These reclaimed lakes will be more productive than either the uplands or wetlands that they replace in terms of production that is likely to be exported off-site. Lakes will have water quality more closely matching wetlands and have fewer nutrients, therefore, they are less likely to cause any changes in off-site productivity.

Fauna: It is unlikely that Alternative A will affect off-site productivity in any measurable way due to the relatively small acreage mined. Alternatives B, C, and D should have very similar impacts on productivity outside the project boundary, as the post reclamation landuses are very similar. The increase in open water in lakes should provide more habitat and attract migratory birds and local birds that use the lakes for feeding, but may roost or nest outside the project boundary. This could increase the overall regional populations of these species.

4.29. INDIRECT EFFECTS

The primary indirect effect is related to the economic impacts on the local, state, National, and world economies. In addition, the PCS public EMAG process resulted in a spin-off Hamilton County planning process that resulted in a comprehensive vision for the county, which was adopted by the county commission.

4.30. COMPATIBILITY WITH FEDERAL, STATE, AND LOCAL OBJECTIVES

PCS has been participating in an Ecosystem Management Agreement (EMAG) process, which is designed to bring all interested federal, state and local governments as well as interested parties into the process from the beginning. The result of this effort is expected to be the execution of an EMA and the issuance of federal, state and local permits, which will insure consistency and compatibility with all federal, state and local objectives.

4.31. CONFLICTS AND CONTROVERSY

As noted above, PCS has initiated and willingly participated in an EMAG process during the development of this DSEIS. Numerous meetings have been held, and documents prepared and distributed along the way. No conflicts or controversies have arisen to date that have not been resolved through agreements, commitments on the part of PCS and project modifications.

4.32. UNCERTAIN, UNIQUE, OR UNKNOWN RISKS

This DSEIS is in support of the continuation of mining operations that began in 1965. The operations have been updated and modified as new and better technology and techniques have been developed. For PCS to receive federal, state and local permits, it must provide reasonable assurances that operations will be conducted in accordance with applicable laws and regulations. Therefore, no uncertain, unique or unknown risks are expected.

4.33. PRECEDENT AND PRINCIPLE FOR FUTURE ACTIONS

As noted previously, this DSEIS is for continuation of mining operations that began in 1965. Various federal, state and local authorizations have been issued through the years for this work. Expected future actions include the issuance of additional federal, state and local permits for the continuation of mining efforts throughout portions of the rest of the EIS boundary. Therefore, it is expected that these future actions will be based on previous actions taking into consideration any new or modified regulations and requirements

4.34. ENVIRONMENTAL COMMITMENTS

PCS Phosphate – White Springs is committed to excellence in employee safety, environmental protection, and production operations. These are not separate commitments or conflicting priorities. Safety, environmental protection, and product quality go hand-in-hand. PCS has played a leading role in development of the Florida Phosphate Council's Guiding Principles, which provide overall direction to company efforts. Operations under these Principles will result in safe and environmentally sound production of high quality products.

PCS and its employees bear a special responsibility for the stewardship of the environment and natural resources. Stewardship of the environment requires that PCS minimize any negative effect of work to the greatest extent possible. That stewardship obligation is for the benefit of the environment in Hamilton County and the surrounding areas for present and future generations.

Every employee shares the responsibility for environmental protection. This is not an added assignment – it is an integral part of everything PCS does. PCS employees take the time to examine the environmental impact of their work – on the land where they live, the water they drink, and the air they breathe.

PCS's environmental record is built on both a commitment to environmental protection and performance. More importantly, it sets the standard for improvement in the future. PCS employees work together and continue to be a leader in environmental protection in the Florida phosphate industry and among PCS facilities.

4.35. COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

MOST IF NOT ALL THE FOLLOWING CONSULTATIONS WILL OCCUR DURING THE REVIEW OF THIS DSEIS. THESE WILL THEN BE UPDATED FOR THE FINAL.

4.35.1. NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

Environmental information on the project has been compiled and a Draft Environmental Impact Statement has been prepared (this document). The project is in compliance with the National Environmental Policy Act.

4.35.2. ENDANGERED SPECIES ACT OF 1973

Consultation will be initiated with NMFS and the USFWS during the review period for the DSEIS.

4.35.3. FISH AND WILDLIFE COORDINATION ACT OF 1958

The proposed project will be coordinated with the USFWS during the review period for this DSEIS. Informal coordination has indicated that there will be no adverse impacts. It is anticipated that the project will be determined to be in full compliance.

4.35.4. NATIONAL HISTORIC PRESERVATION ACT OF 1966 (INTER ALIA)

Archeological issues related to the project area were addressed for the entire project area during the previous EIS (Section 3.49) and in the 1985 TBD (Section 3.8). The ACOE requested that the State Historic Preservation Officer (SHPO) review and comment on archeological resources and any necessary actions that should be taken to prevent any loss of sites eligible for protection. The SHPO sent USGS 7.5 minute quadrangles identifying areas that need to be addressed within the project area. The company chose to survey all areas identified by the SHPO that were in the actual areas to be permitted by the ACOE. The remaining areas would be surveyed prior to mining in any

new areas permitted by the ACOE that contained any of the identified areas. The ACOE permit contained a condition requiring this action. In the final comments on the DEIS (1985), in a letter from the SHPO to ACOE, the SHPO stated that they concurred with the DEIS (1985) conclusion that the project will have no impact on archaeological or historical resources in the proposed project area. The permit for the new application will likely contain a similar condition for any areas not covered in the original survey efforts.

4.35.5. CLEAN WATER ACT OF 1972

All State water quality standards would be met by the activities proposed. State water quality certification has been issued for all past projects. All past similar activities in the past have been certified. A Section 404(b) evaluation is included in this report as Appendix A. A public notice will be issued and a public hearing held in a manner that satisfies the requirements of Section 404 of the Clean Water Act.

4.35.6. CLEAN AIR ACT OF 1972

No air quality permits would be required for this project.

4.35.7. COASTAL ZONE MANAGEMENT ACT OF 1972

A federal consistency determination in accordance with 15 CFR 930 Subpart C is included in this report as Appendix B. State consistency review will be performed during the coordination of the draft DSEIS and permit application.

4.35.8. FARMLAND PROTECTION POLICY ACT OF 1981

No prime or unique farmland would be impacted by implementation of this project. This act is not applicable.

4.35.9. WILD AND SCENIC RIVER ACT OF 1968

No designated Wild and Scenic river reaches would be affected by project related activities. This act is not applicable.

4.35.10. MARINE MAMMAL PROTECTION ACT OF 1972

This project is over 150 river miles from the Gulf of Mexico. No extant marine mammals have ever been seen or documented within the project area.

4.35.11. ESTUARY PROTECTION ACT OF 1968

This project is over 150 river miles from the Gulf of Mexico. No designated estuary would be affected by project activities. This act is not applicable.

4.35.12. FEDERAL WATER PROJECT RECREATION ACT

The principles of the Federal Water Project Recreation Act, (Public Law 89-72) as amended do not apply as there is no federal money involved in the project.

4.35.13. FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976

The project will be coordinated with the National Marine Fisheries Service (NMFS) during the review period for this DSEIS.

4.35.14. SUBMERGED LANDS ACT OF 1953

The project would not occur on submerged lands of the State of Florida. Therefore this act is not applicable.

4.35.15. COASTAL BARRIER RESOURCES ACT AND COASTAL BARRIER IMPROVEMENT ACT OF 1990

This project is over 150 river miles from the Gulf of Mexico. There are no designated coastal barrier resources in the project area that would be affected by this project. These acts are not applicable.

4.35.16. RIVERS AND HARBORS ACT OF 1899

There are no navigable waters covered by this act within the project area. The project contains only small headwater streams. The proposed work would not obstruct navigable waters of the United States.

4.35.17. ANADROMOUS FISH CONSERVATION ACT

Anadromous fish species would not be affected. The proposed activities are over 150 miles from the Gulf of Mexico. The project will be coordinated with the National Marine Fisheries Service during the review period for the DSEIS. The sturgeon has been documented in the lower and middle portions of the Suwannee, but not within the PCS project vicinity.

4.35.18. MIGRATORY BIRD TREATY ACT AND MIGRATORY BIRD CONSERVATION ACT

No migratory birds would be adversely affected by project activities. Migratory birds actually benefit from the open water created by the mining and reclamation activities. The project is in compliance with these acts.

4.35.19. MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

The Marine Protection, Research and Sanctuaries Act does not apply to this project. The disposal activities addressed in this DSEIS have been evaluated under Section 404 of the Clean Water Act.

4.35.20. MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

There is no essential fish habitat within the project area as defined by the Magnuson-Stevens Act. This act addresses marine and anadromous species. The proposed project is over 150 miles from the Gulf of Mexico. Coordination with the National Marine Fishery Service will be done during the review period for this DSEIS.

4.35.21. E.O. 11990, PROTECTION OF WETLANDS

This Executive Order does not apply to regulatory permit actions. Wetlands would be impacted if a permit were issued. Wetland impacts would be subject to evaluation under the guidelines pursuant to Section 404(b) of the Clean Water Act. Additional requirements of this Executive Order would not apply, as the activity is not funded fully or partially by any Federal, state or local government.

4.35.22. E.O. 11988, FLOODPLAIN MANAGEMENT

The project is not in the base floodplain (100-year flood). The proposed project increases storage onsite through the creation of reclaimed lakes that act to reduce the flood peaks. The proposed project has been evaluated in accordance with this Executive Order. The proposed project is in compliance.

4.35.23. E.O. 12898, ENVIRONMENTAL JUSTICE

This project would not result in adverse human health or environmental effects. PCS is an Equal Opportunity Employer (EOE) and does not discriminate based on race, color, or national origin. The activity would not impact "subsistence consumption of fish and wildlife". The proposed activity

would not substantially impact health or the environment or unfairly impact a minority or low-income population.

4.35.24. E.O. 13089, CORAL REEF PROTECTION

This project is over 150 miles from the nearest coral reefs and at over 100 feet NGVD. Therefore, this order is not applicable.

5. LIST OF PREPARERS

NAME	DISCIPLINE	EXPERIENCE	CONTRIBUTION
Stanley W. Posey	Environmental management	20 years experience in environmental science and management	Overall project management
John Wester	Mitigation/reclamation design	4 years environmental; 23 years reclamation planning & management	Mitigation/reclamation plans
Cameron Lynch, EIT	Mine engineer	20 years mine planning, reclamation design	Mine plans/post reclamation design
Eric Norman, P.E.	Mine planning	23 years mine planning, reclamation, operations	Mine reclamation plans
Randall L. Armstrong	Ecology, water quality, permitting	30 years in resource mgmt., regulation, permitting	Project mgmt., permitting
John A. Davis. Ph.D.	Ecology, permitting	25 years in resource mgmt., regulation, permitting	Ecology, wetlands, water quality, permitting
Julie T. Stone	Wildlife and ecology	6 years in ecology, wildlife, permitting	Wildlife, ecology, document preparation
Cornelis Winkler III, P.G.	Geology, clay consolidation, reclamation,	24 years in mining, disposal planning, reclamation	Geology, clay management, reclamation plans
Michael P. Timpe, P.E.	Surface water modeling, geographic information systems (GIS)	20 years in water resource management	Surface water modeling, GIS mapping
W. Emmet Bolch, Jr., Ph.D.	Sanitary engineering	35 years experience in radiation studies and environmental impact assessments	Radiation
Roger L. Burford, Ph.D.	Economics and statistics	40 years in economic impact and cost-benefit studies	Socioeconomics
Mark Gluckman	Planning		Future landuse plans

6. PUBLIC INVOLVEMENT

6.1. SCOPING AND DRAFT EIS

Efforts to develop the plan of study for the STBD and for this SEIS began in late 1997. The ACOE directed PCS to prepare an SEIS to update the 1986 EIS. PCS worked with the various local, state and federal agencies, environmental groups and interested parties to develop a draft Plan of Study (POS) for the STBD, which was to contain the technical information and analyses to support the SEIS. The formal Public Notice requesting comments on the draft POS was published by the ACOE on June 19, 1998. Several meeting with federal, state, and county organization and environmental groups and the public were held to discuss the POS and obtain public input. On September 25, 1998, PCS published the final POS for the STBD.

A Notice of Intent (NOI) to prepare a draft of this EIS appeared in the Federal Register on July 1, 1998 (FR 63, #126 p. 35916). In addition, a public notice was mailed to interested and affected parties on June 19, 1998. A copy of the public notice and NOI are in Appendix C. A public hearing was held on July 30, 1998. Comments were incorporated with the POS. See section 1.7 of this document for a list of scoping activities and coordination with regulatory authorities.

6.2. AGENCY COORDINATION

Official agency coordination will be done during the review period for the DSEIS. The project has been an interactive process with the primary agencies through the EMAG process as noted above.

6.3. LIST OF STATEMENT RECIPIENTS (DRAFT EIS)

A list of the recipients of the DSEIS, other related documents and notices are contained in Appendix C.

6.4. COMMENTS RECEIVED AND RESPONSE

The will be compiled and addressed in the FSEIS.

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SECTION 404(b) EVALUATION
DRAFT ENVIRONMENTAL IMPACT STATEMENT
ON
WHITE SPRINGS AGRICULTURAL CHEMICALS, INC.
(d/b/a PCS PHOSPHATE—WHITE SPRINGS)

**SECTION 404, CLEAN WATER ACT, PERMITTING CONTINUED MINING
OPERATIONS OF PCS PHOSPHATE AT HAMILTON COUNTY MINE
HAMILTON COUNTY, FLORIDA**

I. Project Description

a. Location. The proposed work will be performed in southeast Hamilton County, Florida. The area is approximately 40 miles south of Valdosta, Georgia and 60 miles west of Jacksonville, Florida.

b. General Description. The proposed plan calls for issuance of a permit to mine 1,858 acres of jurisdictional wetlands and mitigate by creating 2,061 acres of new wetlands. Conservation easements would be placed on approximately 2000 acres. The existing mine was issued a permit in 1987 that expires October 7, 2002. A new permit for the remaining mine life (approximately 37 years when integrated into the current permit areas) is needed to allow continued for practicable operations and employment.

c. Authority and Purpose. Under Section 404 of the Clean Water Act, the U. S. Army Corps of Engineers (ACOE) issued an Environmental Impact Statement (EIS) in February 1986 for Occidental Chemical Agricultural Products, Inc. (Occidental) in Hamilton County. This EIS considered various alternatives for mining and reclamation/mitigation for the purpose of producing phosphate ore. The EIS was supported by a Technical Background Document (TBD) that was completed in 1985. Various regulatory decisions were made by the ACOE (and other regulatory authorities) in the years following finalization of the EIS.

Based on the EIS and the 1987 MOU, the Corps of Engineers issued a long-term permit for mining and mining operations in approximately 7,500 acres of wetlands in October 1987. That permit is scheduled to expire in October 7, 2002. The permit incorporated the terms of the 1987 MOU by reference. The permit has been modified a couple for time to make minor adjustments to mine areas. A new mitigation/reclamation option was added to the permit in 1997. As part of the STBD and DEIS, five alternatives were considered. They are discussed in Section 2 of both the STBD and DSEIS. They are summarized in Table 1 of the DSEIS.

d. General Description of Dredged or Fill Material.

(1) General Characteristics of Material. Phosphate mining by PCS within the ACOE jurisdictional areas will remove organic muck sands and overburden. The material is a solid and is removed with large draglines from dry pits. The materials are stacked for later reuse in the

reclamation process. The underlying phosphate matrix is processed to separate the clay and sand from the ore.

(2) Quantity of Material. Approximately 120,000,000 cubic yards of overburden and matrix.

(3) Source of Material. All material is removed from the land surface to a depth of approximately 40 feet. None of the sites covered by the proposed project have been used for disposal of any materials. Therefore the material removed is in its natural state except for incidental disturbance due to silvicultural or other routine landuse activities. The ore is randomly distributed below both uplands and wetlands. No open water bodies are mined.

e. Description of the proposed Discharge Site.

All of the overburden is side cast onto the adjacent (often previously mined) areas. Once mining is completed in the area, the overburden is used in the reclamation of the mined areas. If the area is reclaimed as land and lakes, the overburden will become the upland portion or in some cases be graded down and serve as the foundation for zones of fluctuations in the lakes that are often planted as forested wetlands. If the area is reclaimed as wetlands, the overburden will be used to cap sand tailings that are returned to the mined out pits. This helps to lessen the permeability of the sands that facilitates the creation of wetlands. Colloidal clays are pumped to large above ground setting areas where the clays settle over time and consolidate. Once the setting areas are filled, they are reclaimed in accordance with state reclamation standards administered by the Bureau of Mine Reclamation (BOMR) as are all the mined lands. The mining and reclamation activities under consideration will occur over the next 37 years.

f. Description of Disposal Method. The overburden is side cast using large draglines working in dry pits. Water from the pits is added to the mine water system and used to transport matrix to the beneficiation plant and sand tailings and clays back to the mine areas. The sand is not disposed of. It is used in the reclamation process. The clays are pumped to large, diked impoundments called clay setting areas (CSA). The CSA are heavily regulated by the FDEP under rule 62-672 FAC. Water decanted from the CSA is recycled for use in the mine water system. If excess water accumulates in the system due to heavy or prolonged rainfall, it is routed to permitted NPDES/IW outfalls and discharged after it meets the permit limits.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. Three substrate types will be present in the reclaimed areas: overburden, overburden capped tailings sand and clay. Reclaimed overburden areas will be at or slightly above pre-mining elevation, and will be gently sloped to the perimeter of reclaimed lakes. Overburden capped tailings sand areas in the reclamation landscape will be returned to pre-mining elevation. Reclaimed clay areas will be slightly above pre-mining elevation; Perimeter embankments of reclaimed clay settling areas will be sloped to match the surrounding topography, and will be 4H:1V or flatter. All three substrate types will be revegetated with an appropriate variety of trees, shrubs and grasses.

(2) Sediment Type. The sandy sediments that comprise the overburden soils are referred to as "undifferentiated marine terrace deposits." These sediments consist of fine to

medium-grained quartz sand with minor amounts of organic material, clays, and heavy minerals (Ceryak, 1983). Sand tailings and clay make up a portion of the matrix that is mined for phosphate production. The beneficiation process separates these materials from the phosphate rock. The sandy sediments are typically fine to coarse-grained quartz sand. The clays consist of phosphatic, fine-grained clay particles that exhibit a high degree of plasticity.

(3) Dredge/Fill Material Movement. As previously noted, overburden excavated during mining is typically cast aside onto areas adjoining the mine site, and subsequently utilized for reclamation of the mined area. Tailings sand and clay separated from phosphate rock during the beneficiation process are hydraulically transported to various materials management and reclamation areas via pipeline. Tailings deposits and portions of clay areas are covered with overburden during reclamation. The placement of overburden, tailings sand and clay within these controlled environments will effectively eliminate the movement of these materials offsite.

(4) Physical Effects on Benthos. In a report prepared for the Florida Institute for Phosphate Research (Crisman, 1997), researchers concluded that any losses of benthic species as a result of mining would be temporary, and that population values approximating those found in natural wetlands systems could be restored with successful reclamation and revegetation. According to the report, the presence of leaf litter, decaying wood and subaqueous roots are necessary for the reappearance of benthic species, and these organic materials will be reestablished with the successful revegetation of the site. The study reported that between three and six years would be required to reestablish benthic populations in reclaimed wetlands.

b. Water Circulation, Fluctuation and Salinity Determination.

(1) Water Column Effects. There are no impacts to water columns in areas that are not permitted for mining or mine support. All of the dredged materials are deposited on land within the mining areas that includes clay settling areas and mined pits. The sand tailings are often placed in the mined out pits to fill the void created during the ore extraction. The sands are then capped with overburden and planted with trees to return them to an economic use. Nutrient levels in mine water discharges will not change as a result of any decisions on the proposed action.

Off site water columns are protected by the NPDES / IW system which places limits on the water that can be discharged. This protects the offsite water columns.

(2) Current Patterns and Circulation. The discharge of dredged materials does not directly affect any offsite current patterns or circulation. After mining the land is reclaimed so that pre-mining drainage patterns are essentially restored in accordance with BOMR standards in the reclamation rules found in 62-16 FAC or its predecessors. During mining there is some temporary diversion of flows from basins that do not have permitted outfalls to discharge mine process water. None of the streams will have all of the flow diverted.

(3) Normal Water Level Fluctuations and Salinity Gradients. The application areas are over 150 miles from the gulf. Several major freshwater river systems enter the Suwannee River between PCS's indirect discharges and the gulf. There should be no impacts on salinity.

c. Suspended Particulate/Turbidity Determinations. All the runoff from the mine area is contained onsite by perimeter ditches and berms. The water is routed to mine pits, settling areas or reclaimed lakes and settled prior to discharge. All water is monitored and discharged through NPDES /IW permitted discharge points. There would be no offsite impacts to receiving waters.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site. There would likely be increased suspended particulates and turbidity in the vicinity of the sites that receive overburden, sand tailings or colloidal clays. However, none of these sites occur within waters of the US or the state. They are contained onsite. Any water which eventually makes its way to discharge points will only be discharged to receiving waters after it meets the suspended solids and turbidity limits in the current NPDES/IW permits.

(2) Effects on the Chemical and Physical Properties of the Water Column.

(a) Light Penetration. The dredged materials are not placed in aquatic sites unless they themselves have been permitted for dredging or are a part of the existing permitted mine system. To the extent that material is placed in these areas the water column is completely eliminated. The placement of dredged materials will not have any direct impact on this parameter in unpermitted areas.

(b) Dissolved Oxygen. The dredged materials are not placed in aquatic sites unless they themselves have been permitted for dredging or are a part of the existing permitted mine system. To the extent that material is placed in these areas the water column is completely eliminated. The placement of dredged materials will not have any direct impact on this parameter in unpermitted areas.

(c) Toxic Metals, Organics, and Pathogens. Mining does not generate any of these.

(d) Aesthetics. The dredged materials are not placed in aquatic sites unless they themselves have been permitted for dredging or are a part of the existing permitted mine system. To the extent that material is placed in these areas the water column is completely eliminated. The placement of dredged materials will not have any direct impact on this parameter in unpermitted areas.

(3) Effects on Biota.

(a) Primary Productivity and Photosynthesis. The dredged materials are not placed in aquatic sites unless they themselves have been permitted for dredging or are a part of the existing permitted mine system. To the extent that material is placed in these areas the water column is completely eliminated. The placement of dredged materials will not have any direct impact on this parameter in unpermitted areas.

(b) Suspension/Filter Feeders. The dredged materials are not placed in aquatic sites unless they themselves have been permitted for dredging or are a part of the existing permitted mine system. To the extent that material is placed in these areas the water column is completely eliminated. The placement of dredged materials will not have any direct impact on this parameter in unpermitted areas.

(c) Sight Feeders. The dredged materials are not placed in aquatic sites unless they themselves have been permitted for dredging or are a part of the existing permitted mine system. To the extent that material is placed in these areas the water column is completely eliminated. The placement of dredged materials will not have any direct impact on this parameter in unpermitted areas.

d. Contaminant Determinations.

There are no contaminants as such in the material that is dredged. All material is removed from the land surface to a depth of approximately 40 feet. None of the sites covered by the proposed project have been used for disposal of any materials. Therefore the material removed is in its natural state except for incidental disturbance due to silvicultural or other routine landuse activities. The ore is randomly distributed below both uplands and wetlands. No open water bodies are mined.

e. Aquatic Ecosystem and Organism Determinations.

(1) Effects on Plankton. The dredged materials are not placed in aquatic sites unless they themselves have been permitted for dredging or are a part of the existing permitted mine system. To the extent that material is placed in these areas the water column is completely eliminated. The placement of dredged materials will not have any direct impact on this parameter in unpermitted areas.

(2) Effects on Benthos. In a report prepared for the Florida Institute for Phosphate Research (Crisman, 1997), researchers concluded that any losses of benthic species as a result of mining would be temporary, and that population values approximating those found in natural wetlands systems could be restored with successful reclamation and revegetation. According to the report, the presence of leaf litter, decaying wood and subaqueous roots are necessary for the reappearance of benthic species, and these organic materials will be reestablished with the successful revegetation of the site. The study reported that between three and six years would be required to reestablish benthic populations in reclaimed wetlands.

(3) Effects on Nekton. The dredged materials are not placed in aquatic sites unless they themselves have been permitted for dredging or are a part of the existing permitted mine system. To the extent that material is placed in these areas the water column is completely eliminated. The placement of dredged materials will not have any direct impact on this parameter in unpermitted areas.

(4) Effects on the Aquatic Food Web. No materials in any aquatic areas that are not permitted for mining or mine support. To the extent that permitted areas are used for temporary storage of dredged materials, the food web will be temporarily interrupted at that particular location. However, on a net basis a much greater source of food is created both during mining and after reclamation through the creation of both temporary and permanent water bodies and wetlands. This is clearly evident by the increased usage of the mined and reclaimed areas by waterfowl, wading birds, reptiles, amphibians, aquatic mammals, etc. Eagles and osprey have established nests in the area due to the open water foraging areas created by mining and reclamation.

(5) Effects on Special Aquatic Sites.

(a) Hardground and Coral Reef Communities. The project area is over 150 miles from the Gulf of Mexico. There are no types of these communities within the project area.

(b) Sanctuaries and Refuges. There are no areas as defined in 40 CFR 230.40 within or adjacent to the project area.

(c) Wetlands. The maximum wetland areal impact would occur under the preferred alternative which is covered by the application footprint. Under this scenario 1,858 acres of ACOE jurisdictional wetlands would be mined and 2,061 acres of mitigation wetlands would be created. An additional 4,452 acres of other wetlands will be mined and replaced on a slightly more than acre for acre basis. The proposed mitigation plan would more than compensate for the temporary wetland impacts via the following:

- Conservation easements equivalent to one third of the wetland acres mined
- An agreement not to request the ACOE to reduce their jurisdiction, over the approximately 7,500 wetland acres within the current permit, in accordance with the SWANCC decision
- Conversion of approximately 2,700 of post-modification (alternative/off-site) standards to pre-modification (conventional) standards

(d) Mud Flats. There are no areas as defined in 40 CFR 230.42 within or adjacent to the project area. The project area is over 150 miles from the Gulf of Mexico.

(e) Vegetated Shallows. There are no areas as defined in 40 CFR 230.43 within or adjacent to the project area.

(f) Riffle and Pool Complexes. There are no areas as defined in 40 CFR 230.45 within or adjacent to the application area.

(6) Endangered and Threatened Species. A section 7 consultation was completed as part of the initial EIS and a no effect determination was made. An informal discussion was held with the USFWS during preparation of this DSEIS and all parties felt that nothing has changed except for the establishment of eagle nests in the area due to the reclaimed lakes. PCS has eagle nest protection plans for the nests. Surveys for the flatwoods salamander, a newly listed species, was performed and verified by USFWS personnel. No evidence of this species was found. Therefore, a no effect determination is expected.

(7) Other Wildlife. The mining and reclamation has and will continue to be a net benefit to wildlife. The open water habitats and adjacent littoral and wetland zones act as magnets for many species of wildlife. Birders have documented very high levels of usage both in terms of individuals and species. Duck hunters have enjoyed some of the best hunting success in the state. The creation of the lakes and associated wetlands with hardwood buffers offer increased habitat types and ecotones. A commercial operator has purchased approximately 14,500 acres of reclaimed land for use as a hunting and fishing plantation that indicates its exceptional wildlife and fishery value. A private individual has purchased 2,500 acres for use as a private fishing preserve.

(8) Actions to Minimize Impacts. At the conclusion of the initial EIS and permitting process, the applicant agreed to preserve from mining over 19,000 acres of the perceived higher quality wetlands. All mined or disturbed wetlands are reclaimed on an acre for acre and type for type basis. All water discharged from the site is settled and monitored prior to discharge to insure that all permit limits are met and water quality standards in the receiving streams are not violated.

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determination. PCS has been in operation for approximately 35 years and has permitted NPDES /IW permits which have existing instream monitoring points

were compliance with water quality standards are measured. No additional discharge points are anticipated at this time so no new mixing zones are required.

(2) Determination of Compliance with Applicable Water Quality Standards.

PCS has been in operation for approximately 35 years and has permitted NPDES /IWW permits which have existing instream monitoring points where compliance with water quality standards are measured. All discharges from the mine are settled prior to discharge and meet all permit limits. PCS is also in compliance with all Class III water quality standards at the instream monitoring points.

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supplies. None.

(b) Recreational and Commercial Fisheries. The mining and reclamation have no adverse effects on recreational or commercial fisheries. In fact the reclaimed lakes actually significantly improve the fisheries and have become the basis for a viable ongoing fee fishing commercial operation.

(c) Water Related Recreation. There are no adverse impacts to recreation. The reclaimed lakes greatly increase the opportunities for water related recreation. They also provide better opportunities for birding. Tens of thousands of reclaimed acres have been purchased for recreation.

(d) Aesthetics. Aesthetic landscapes are very individualistic. A casual observer might view the active mine operations as being unappealing. To those whose livelihood or royalty payments depend on the continued operations, the active operations are appealing. This is especially true of those who are familiar with the industry operations and realize that all the active areas will be reclaimed to similar or in some cases better looking landforms. The reclaimed lakes provide variety in the otherwise relatively monotonous landscape. The uplands surrounding the lakes provide vistas across the lakes and opportunities for fishing, boating, birding and other outdoor activities. In many cases, one will not be able to tell which areas were mined and which were not after the planted areas mature.

(e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. There are none of the above listed areas within or adjacent to the project boundary.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. All of the impacts discussed in the DSEIS and STBD (2000) were evaluated in the context of what has already been mined or disturbed and the ongoing mining and reclamation activities. The only other major impacts within project area are related to past and ongoing silvicultural activities. When the silviculture BMP's are followed, these impacts are temporary in nature and do not have any lasting significant impacts. When wetland areas are timbered and converted, losses in aquatic ecosystem functions and benefits can and do occur. There are no quantifications of these types of impacts and are outside of the scope of the DSEIS.

As noted in other sections, given the sequencing of mine preparation, mining and reclamation, the amount of land that is not providing ecological benefits is relatively constant. PCS is now

reclaiming land as fast or faster than it is mined on a net acre basis. Since 1991 they have reclaimed approximately 1,000 more acres than they have mined.

Nutrient loadings from the entire facility have decreased significantly over the past decade since the Suwannee River was determined to be an Outstanding Florida Water (OFW). The Suwannee River is not within the project site. However, it does receive indirect discharges from PCS operations. The Suwannee River does currently receive discharges from the White Springs Wastewater Plant. However, these will soon cease because PCS has agreed to accept the discharge into their mine water system. The nutrients that would have gone directly to the river will now be reduced through wetland uptake in the vegetated portions of the clay settling system that are either inactive due to a shut down of one mine area or due to a compaction/consolidation state which takes the areas out of active service for a period of time.

In addition to the environmental impacts, there are significant economic and human resource impacts. The cumulative total impact on the State of Florida is over \$15.1 billion. Of this total, over \$4.4 billion represents personal incomes to Florida residents, over \$1.3 billion is taxes for the state and local governments in Florida, and over \$9.4 billion is sales for businesses located in Florida, after payrolls and taxes. Looked at another way, this 28 years of operation can be expected to generate over 160,000 person-years of employment in the state.

The total economic impact of a projected 28 years of PCS's operations amounts to over \$5.3 billion in the three-county area including Hamilton, Columbia, and Suwannee Counties. Of this total, over \$2.2 billion represents incomes to the residents of the counties, just under \$390 million is taxes for the state and local governments in the area, and over \$2.7 billion represents sales for the businesses located in the three counties. In terms of employment, these 28 years of operation will generate more than 77,000 person-years of employment in the three counties.

The cumulative total economic impact of continued operation of PCS in Hamilton County for an additional 28 years will be more than \$2.0 billion. Of this total, just under \$837 million will be incomes to individual Hamilton County residents, over \$235 million will be taxes for Hamilton County, and over \$934 million will be sales for Hamilton County businesses, after payrolls and taxes. In terms of employment, these 28 years of operation will generate more than 26,000 person-years of employment in Hamilton County.

h. Determination of Secondary Effects on the Aquatic Ecosystem. Safeguards are in place to prevent any primary or secondary significant adverse effects on the aquatic ecosystem. Mining does increase nutrient levels in the reclaimed lakes and in the receiving waters. However, the increases do not cause any adverse impacts. Increased nutrients are beneficial for development of sport fisheries which are considered excellent in the reclaimed lakes. They also increase the primary and secondary food production that subsequently increases the forage available for birds and other aquatic organisms (please see response to item II.e.7.).

Dewatering activities within the application footprint will not have any extended or irreversible impacts on unpermitted aquatic systems. PCS has committed to installing recharge systems if and when significant impact are noted or reliably predicted.

III. Findings of Compliance or Non-compliance with the Restrictions on Discharge.

- a. No significant adaptations of the guidelines were made relative to this evaluation.

b. No practicable alternative exists which meets the study objectives that does not involve discharge of fill into waters of the United States.

c. After consideration of type materials being dredged and reused in the reclamation process and the safeguards to prevent offsite discharges, the discharge of fill materials will not cause or contribute to, violations of any applicable State water quality standards for Class III waters. The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

d. The issuance of a permit to mine and reclaim an additional 1,858 acres of wetlands will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.

e. The placement of fill material will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic species and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values will not occur.

f. The actions covered by this action are simply an extension in time and area to those approved after the initial EIS in 1986. The permittee and its predecessors have been operation at this site since 1965.

g. On the basis of the guidelines, the proposed disposal site for the discharge of dredged material is specified as complying with the requirements of these guidelines.

APPENDIX B - COASTAL ZONE MANAGEMENT CONSISTENCY

FLORIDA COASTAL ZONE MANAGEMENT PROGRAM FEDERAL CONSISTENCY EVALUATION PROCEDURES

SECTION 404, CLEAN WATER ACT, PERMITTING CONTINUED MINING OPERATIONS OF PCS PHOSPHATE AT HAMILTON COUNTY MINE HAMILTON COUNTY, FLORIDA

1. Chapters 161, Beach and Shore Preservation. The intent of the coastal construction permit program established by this chapter is to regulate construction projects located seaward of the line of mean high water and which might have an effect on natural shoreline processes.

Response The application areas are over 150 river miles from the Gulf or Mexico and over 100 feet NGVD. This chapter does not apply.

2. Chapters 163(part II), 186, and 187, County, Municipal, State and Regional Planning. These chapters establish the Local Comprehensive Plans, the Strategic Regional Policy Plans, and the State Comprehensive Plan (SCP). The SCP sets goals that articulate a strategic vision of the State's future. Its purpose is to define in a broad sense, goals, and policies that provide decision-makers directions for the future and provide long-range guidance for an orderly social, economic and physical growth.

Response: The proposed project has been coordinated with various Federal, State and local agencies during the planning process. The project meets the primary goal of the State Comprehensive Plan.

3. Chapter 252, Disaster Preparation, Response and Mitigation. This chapter creates a state emergency management agency, with the authority to provide for the common defense; to protect the public peace, health and safety; and to preserve the lives and property of the people of Florida.

Response: White Springs Acricultural Chemicals, Inc. (d/b/a PCS Phosphate – White Springs) (PCS) has in place a Comprehensive Emergency Management Plan that addresses essentially all types of potential disasters, including but not limited to hurricanes, dam breaks, fires, explosions, etc. The plan is integrated with local, state, and federal plans and includes joint drills to insure appropriate and immediate responses. The plan addresses good management practices and the appropriate state and federal rules. The plan should fully comply with the requirements of this chapter.

4. Chapter 253, State Lands. This chapter governs the management of submerged state lands and resources within state lands. This includes archeological and historical resources; water resources; fish and wildlife resources; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: There are no submerged state lands included within the application. There are two small areas (Section 10, Township 1 South, Range 14 East (25 acres) and Section 34 Township 1 South, Range 16 East (40 acres)) of current state ownership of fractional mineral interests in this application. Both areas are subject to an exchange agreement under which PCS will acquire the state's interest prior to mining.

5. Chapters 253, 259, 260, and 375, Land Acquisition. This chapter authorizes the state to acquire land to protect environmentally sensitive areas.

Response: All the environmentally sensitive areas within the project site have been preserved from mining via the 1987 Memorandum of Understanding (MOU).

6. Chapter 258, State Parks and Aquatic Preserves. This chapter authorizes the state to manage state parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: The proposed project area does not contain any state parks or aquatic preserves nor are there any within the immediate vicinity of the project that would be adversely affected. The project is consistent with this chapter.

7. Chapter 267, Historic Preservation. This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: Archeological issues related to the project area were addressed for the entire project area during the previous EIS (Section 3.49) and in the 1985 TBD (Section 3.8). The U.S. Army Corps of Engineers (ACOE) requested that the State Historic Preservation Officer (SHPO) review and comment on archeological resources and any necessary actions that should be taken to prevent any loss of sites eligible for protection. The SHPO sent USGS 7.5 minute quadrangles identifying areas that need to be addressed within the project area. The company chose to survey all areas identified by the SHPO that were in the actual areas to be permitted by the ACOE. The remaining areas would be surveyed prior to mining in any new areas permitted by the ACOE that contained any of the identified areas. The ACOE permit contained a condition requiring this action. In the final comments on the DEIS (1985), in a letter from the SHPO to ACOE, the SHPO stated that they concurred with the DEIS (1985) conclusion that the project will have no impact on archaeological or historical resources in the proposed project area. The permit for the new application will contain a similar condition for any areas not covered in the original survey efforts.

8. Chapters 288, Economic Development and Tourism. This chapter directs the state to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: Approval of the permits requested by this application and covered by this DSEIS will generate over \$15,000,000,000 in economic benefits. Continuation of the mining operations will also provide over 300,000,000 person- hours of work. Therefore, the proposed action is consistent with the goals of this chapter.

9. Chapters 334 and 339, Transportation. This chapter authorizes the planning and development of a safe balanced and efficient transportation system.

Response: No public transportation systems would be impacted by this project.

10. Chapter 370, Saltwater Living Resources. This chapter directs the state to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in state waters; to protect and enhance the marine and estuarine environment; to regulate fishermen and vessels of the state engaged in the taking of such resources within or without state waters; to issue licenses for

the taking and processing products of fisheries; to secure and maintain statistical records of the catch of each such species; and, to conduct scientific, economic, and other studies and research.

Response: The application areas are over 150 river miles from the Gulf of Mexico. There will be no impacts on any saltwater organisms.

11. Chapter 372, Living Land and Freshwater Resources. This chapter establishes the Game and Freshwater Fish Commission (currently Fish and Wildlife Conservation Commission (FWCC)) and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions which provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The project will have no significant adverse effects on freshwater aquatic life or wild animal life. As discussed in the DSEIS, the mining and reclamation process creates a more heterogeneous mix of habitats and ecotones, which would be beneficial to wildlife and freshwater aquatic life. The state FWCC manages several reclaimed areas for public fishing and wildlife observation. One active mine area is managed by FWCC for waterfowl hunting.

12. Chapter 373, Water Resources. This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

Response: This project is a continuation of an existing operation that has been in operation for over 35 years. The activities covered by this permit application will not require any increase in withdrawal rates. The applicant currently has consumptive use permits that are adequate for all needs covered by the application.

13. Chapter 376, Pollutant Spill Prevention and Control. This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: PCS has a comprehensive spill prevention plan in place for the mine that complies with applicable state and federal standards (40 CFR 112). It also goes beyond the governmental requirements to insure good management practices.

14. Chapter 377, Oil and Gas Exploration and Production. This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This project does not involve the exploration, drilling or production of gas, oil or petroleum product and therefore, this chapter does not apply.

15. Chapter 380, Environmental Land and Water Management. This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact nature of proposed large-scale development. This chapter also deals with the Area of Critical State Concern program and the Coastal Infrastructure Policy.

Response: The proposed mining and reclamation project will not have any adverse regional impact on resources in the area. The impacts from mining are fully mitigated for by reclamation and the other agreements in the mitigation package. In addition, the project will provide over 300,000,000 person hours of employment and millions of dollars in taxes. Therefore, the project is consistent with the goals of this chapter.

16. Chapters 381 (selected subsections on on-site sewage treatment and disposal systems) and 388 (Mosquito/Arthropod Control). Chapter 388 provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: The project will not further the propagation of mosquitoes or other pest arthropods. PCS operates on-site sewage treatment and disposal systems for domestic waste from administrative and manufacturing facilities. These are permitted by FDEP and operated in accordance with relevant rules.

17. Chapter 403, Environmental Control. This chapter authorizes the regulation of pollution of the air and waters of the state by the Florida Department of Environmental Regulation (now a part of the Florida Department of Environmental Protection).

Response: A Final Environmental Impact Statement addressing project impacts has been prepared and will be reviewed by the appropriate resource agencies including the Florida Department of Environmental Protection. Environmental protection measures will be implemented to ensure that no lasting adverse effects on water quality, air quality, or other environmental resources will occur. Water Quality Certification will be sought from the State prior to construction. The project complies with the intent of this chapter.

18. Chapter 582, Soil and Water Conservation. This chapter establishes policy for the conservation of the state soil and water through the Department of Agriculture. Landuse policies will be evaluated in terms of their tendency to cause or contribute to soil erosion or to conserve, develop, and utilize soil and water resources both onsite or in adjoining properties affected by the project. Particular attention will be given to projects on or near agricultural lands.

Response: This proposed project will not cause the permanent loss of any soil or water. All mined land will be reclaimed and returned to productive uses. Most of the uplands will be returned to silviculture. The reclaimed land is also suitable for agriculture or ranching should one desire to conduct these activities on the land. A portion of the land will be returned as open water lakes, which are very productive fisheries.